Watkiss PowerSquare™224 User Manual

Right-to-Left Model

English, Issue 1, November 2014

© Watkiss Automation Limited 2014

All Rights Reserved.
Reproduction, adaptation, or translation without prior written permission is prohibited, except as allowed under the copyright laws.

Warranty
The information contained in this document is subject to change without notice. Watkiss Automation Limited makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Watkiss Automation Limited shall not be liable for errors contained herein or for incidental or consequential damage in connection with the furnishing, performance or use of this material.

Table of Contents

1. Introduction to the Watkiss PowerSquare™224 1

Description of the PowerSquare 2

2. How to Run the PowerSquare 7

Introduction 7
Before You Begin 8
Turn On the PowerSquare 8
Enter the Job Settings 9
Adjust the Stacker 11
Run the Job 11

3. The User Interface 13

The Touch Screen 13
The Job Mimic 16
The BASIC Window 18
The LOAD & SAVE Window 20
The ADVANCED Window 22
The CONFIGURE Window 23
The MENU Window 24

4. Standard Tasks 25

Introduction 25
Load and Save the Job Settings 26
Adjust the Stitch Pitch 27
Open the Connecting Bridge Cover 28
Open and Close the Folder Cover 29
Lift and Lower the Clincher Frame 30
Open the Gathering Area Cover 31
Lift the PowerSquare Main Deck 31
Empty the Trim Bin 33

continued . . .

User Manual for Watkiss PowerSquare™224 Right-to-Left Model
English, Issue 1, November 2014. Watkiss Part No. 960-961
Effective Serial No. WA/PSQ/0800 onwards

Open the Stitch-Wire Cabinet 34
Adjust the Stacker 35
Adjust the Book Stacker 36
Unload the Book Stacker 37
Move the Book Stacker 38
Operate the PowerSquare offline 39

5. Error Conditions, Problems and Solutions 41

Printer Error 41
PowerSquare Error 41
General Problems 42
Book Quality Problems 43
Message List 55
Paper Jams 64
Clear a Stitch-wire Jam 72
Clear a Stitch Head Jam 74
Calibrate the Touch Screen 77
Change the Fuses - PowerSquare 77
Change the Fuses - Book Stacker 78
Manually park the Shuttle 79

6. Maintenance 81

Service Interval 81
Operator Maintenance 81
Clean the PowerSquare 82
Clean the Former Roller 83
Clean the Polyurethane Strips in the Form Clamp 84
Clean the Trimmings-removal Fingers 86
Clean excess grease from the Stitch Head 88
Lubricate the Stitch Head 89
Install New Stitch-wire 94
Clear paper from the trim stop 98

7. Specifications 99

8. Declaration of Conformity 103

Appendix 105

Image Creep 105

CHAPTER 1 Introduction to the Watkiss PowerSquare™224

Thank you for choosing the Watkiss PowerSquare™224.

Your Manual

The Watkiss PowerSquare™224 User Manual describes how to do these tasks.

- Operate the Watkiss PowerSquare™224
- Find and correct error conditions
- Do normal maintenance tasks

Operator training is given when the PowerSquare is installed. To make sure you use your PowerSquare correctly, read your manual.

The Watkiss PowerSquare™224 User Manual does not describe the operation of the printer. If needed, refer to your printer user manual.

In this manual the 'Watkiss PowerSquare™224' is referred to as the 'PowerSquare'.

Safety Information

Safety information is included in the separate "Safety Information Manual". *Read the safety information before you use your PowerSquare*.

Warning and Caution Messages

The warning and caution messages used in this manual are shown below.

WARNING: *A WARNING message tells you that a procedure or operation can be dangerous. To prevent injury, you must follow the instructions.*

CAUTION: *A CAUTION message tells you that a procedure or operation can damage the machine or the product. To prevent damage, you must follow the instructions.*

Installation

Your PowerSquare must be installed by a Watkiss approved service engineer. Special knowledge is needed to install the machine.

CAUTION: *Only connect the machine to a mains power supply of the correct voltage with a good earth-connection. The correct machine-voltage is shown on the label at the mains power supply input on the rear of the machine. If the machine is connected to the wrong supply, the warranty is cancelled.*

How to Get Help

If you have any questions or problems, refer to the problem solving section in this manual (see “Error Conditions, Problems and Solutions” on page 41). Contact your PowerSquare supplier for further help.

Description of the PowerSquare

Introduction

The PowerSquare operates online with digital printers to process sets of printed pages into stitched books. The main parts are shown below. The PowerSquare can be fitted with a standard Stacker or with a Book Stacker. An optional Side-Trimmer can be fitted.

Operator Side of the PowerSquare

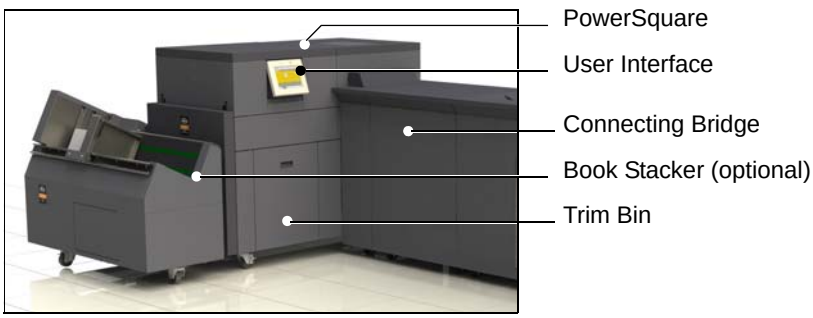


FIGURE 1. Operator side of the PowerSquare

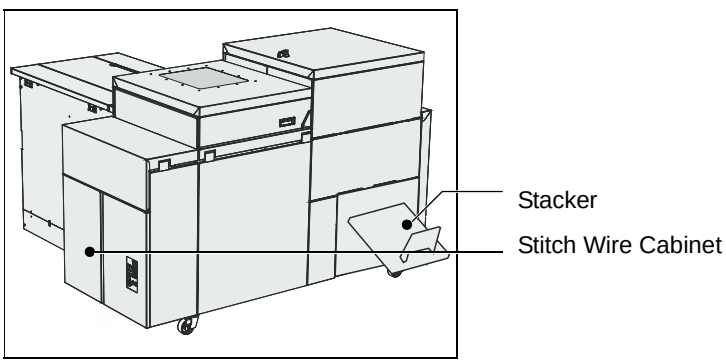


FIGURE 2. Stacker side of the PowerSquare

Component - Function Table

Component	Function
The connecting bridge	The connecting bridge moves the printed sheets from the printer to the PowerSquare. If needed, the sheets are rotated into the correct direction. Rotation lets the printer operate at optimum print speed. Adjustment for the size of the paper and sheet rotation is automatic, according to the settings entered on the touch screen.
The user interface	The user interface has a colour touch screen, a start button and a stop button .
The PowerSquare	The PowerSquare stitches, folds, spine-forms and trims the sheets to make a finished book.
The stacker	The stacker collects the finished books (See Figure 2).
The book stacker	The book stacker is optional. It is a high-capacity stacker for the finished books (See Figure 2).
The stitch wire cabinet	The stitch-wire cabinet holds the spool of stitch-wire.
The trim bin	The trim bin collects the paper that is trimmed from the edge of the book.

The Rear Panel of the PowerSquare

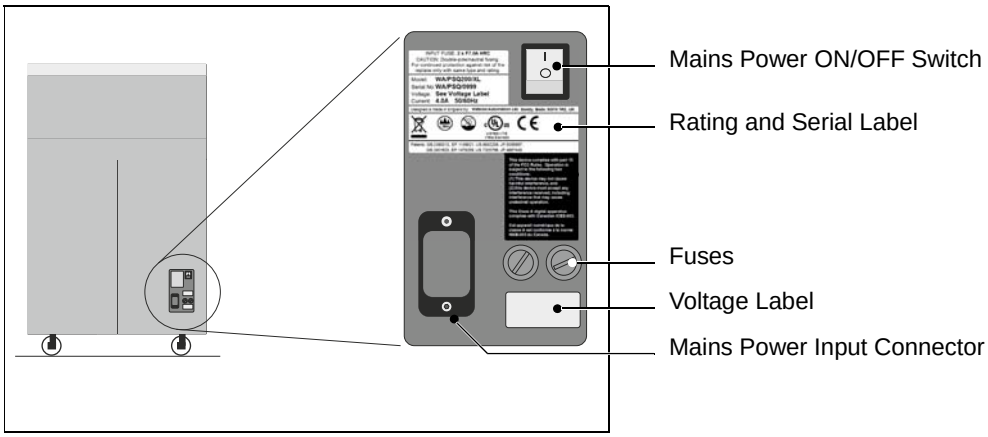


FIGURE 3. The Rear Panel of the PowerSquare.

Component - Function Table

Component	Function
Rating and serial label	The rating label displays the type of machine, serial number, power use and fuse information.
Mains power ON/OFF switch	The mains power ON/OFF switch turns ON or turns OFF the PowerSquare. When you turn OFF the PowerSquare, the current settings are stored.
Fuses	The fuses make sure the operator and the machine are protected if there is an electrical problem or short circuit.
Voltage label	The voltage label is fitted to the PowerSquare during the installation procedure. The voltage label displays the selected voltage.
Mains power input connector	The mains power input connector is used to connect the PowerSquare to mains electrical power.

The Input Panel of the Book Stacker

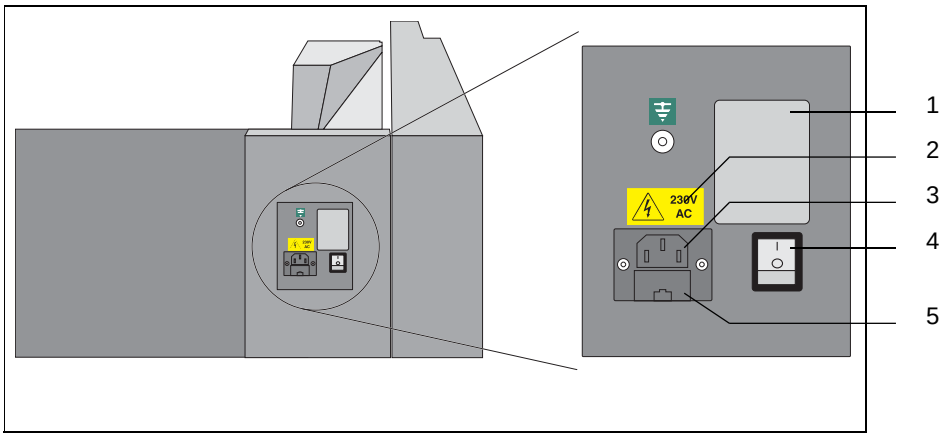


FIGURE 4. The Input Panel of the Book Stacker.

Component - Function Table

No.	Component	Function
1	Rating and serial label	The rating label displays the type of machine, serial number, power use and fuse information.
2	Voltage advisory label	The voltage advisory label shows that the input voltage is 230V AC. The 230V power is supplied by the PowerSquare.
3	Power input connector	The power input connector is used to connect the power supply from the PowerSquare to the Book Stacker.
4	Mains power ON/OFF switch	The mains power ON/OFF switch turns ON the Book Stacker or turns OFF the Book Stacker.
5	Fuses	The fuses make sure the operator and the machine are protected if there is an electrical problem or short circuit.

CHAPTER 2 How to Run the PowerSquare

Introduction

This chapter gives information on how to run a job on the PowerSquare. For information on how to operate the printer, refer to the printer documentation.

Information about the user interface is included in “The User Interface” on page 13.

Information about standard procedures, for example opening covers to clear a paper jam, is included in “Standard Tasks” on page 25.

Before You Begin

Paper and Book Quality Instructions

- The size of the paper, and either the set thickness or the sheet thickness, must be measured.These measurements are entered into the touch screen before you begin a print job.
- Measure the size of the *printed* paper. The paper dimension changes when the paper is printed.
- To get best accuracy, use millimetres to measure the set. See page 9.
- Enter accurate dimensions into the touch screen.
- If the book is made from several different types of paper, make sure the different paper types are all the same size.

See “Book Quality Problems” on page 43 for further information.

Set Thickness and Sheet Thickness

In order to make a high quality finished book, the machine adjusts the length of the stitch and the amount of spine-form according to the set thickness. There are two operating modes:

Sheet thickness and page count
This is the default operating mode.

Measure the thickness of a single sheet. Enter the value into the touch screen. Use the measuring tool supplied with the machine. The sheets are counted as they enter the machine and the settings adjust automatically.

> **Tip:** *It is easiest to measure 10 sheets of paper and divide the value by 10. If you use the same type of paper frequently, record the value so that you do not need to measure it each time.*

Set thickness
Measure the thickness of a complete set. Enter the value into the touch screen. Measure the set thickness as accurately as possible. Use the measuring tool supplied with the machine.

Turn On the PowerSquare

Procedure

1. Connect the PowerSquare and any accessories to the mains power supply.
2. Use the mains ON/OFF switches to turn ON the PowerSquare and accessories.

The PowerSquare makes this sequence of beeps:
‘beep__beep beep beep beep_____beep __ beep’.

The touch screen illuminates and the machine calibrates.
When **READY** is displayed on the screen, the machine is ready for use.

Enter the Job Settings

Introduction

Make the settings for a new job in the **BASIC** ⌂ window on the touch screen. See “The User Interface” on page 13 for more information.

The **PAPER SIZE** and **PAGE DIRECTION** settings are entered on the touch screen. These dimensions refer to the format of the paper when it enters the PowerSquare.

CAUTION: *Do not operate the touch screen with a sharp object or with too much force. These actions can damage the touch screen.*

Before You Begin

Step	Action	Information
1	Print a set to the stacker.	
2	Measure the sheet size. Measure either the sheet thickness or the set thickness.	To make an accurate book you must enter accurate paper dimensions into the touch screen. To get best accuracy, use millimetres to measure the set. If needed, set the PowerSquare to use millimetres. • Touch **MENU**. • Select **Supervisor** access level. • Touch **MENU > CONFIGURE ⚙ > MACHINE OPTIONS**. • Touch **mm > CLOSE**.
3	Use these dimensions for the job setting.	

Note: *This set can be made into a book. See “Operate the PowerSquare offline” on page 39.*

Procedure for a New Job

Step	Action	Information
1	Touch **BASIC** ⌂.	
2	Enter the paper size.	Touch **PAPER SIZE**. Enter the dimensions of the paper. The job setting is easier if you first select a preset paper size, then adjust the settings as necessary. Touch **PAPER SIZE** > **PRESETS** > **A3** or **A4**. (USA: 11x17, 8.5x11 or 8.5x14)
3	Enter the page direction.	Touch **PAGE DIRECTION > LANDSCAPE** or **PORTRAIT**. If the **PAGE DIRECTION** option is not available, the **PAGE DIRECTION** cannot be changed.
4	Enter the page rotation setting.	For A4 paper size, the normal setting for **ROTATE** is **ON**. Rotation lets the printer operate at optimum speed. Touch **ROTATE** to turn the sheet rotation **ON** or **OFF**. Always select the page direction before you change the rotate setting.
5	Enter the sheet thickness *or*	Touch **SET THICKNESS.** Set **AUTO** to **ON**. Use **'+'** or **' - '** to enter the **SHEET THICKNESS**.
	Enter the set thickness. See "Set Thickness and Sheet Thickness" on page 8.	Touch **SET THICKNESS.** Set **AUTO** to **OFF**. Use **'+'** or **' - '** to enter the **SET THICKNESS**.
6	Enter the number of stitches.	Touch **STITCHES** and enter the number of stitches. If needed, the stitch pitch can be changed. See "STITCH PITCH" on page 18.
7	Enter the spine form setting.	The spine form setting is automatic, according to the **SET THICKNESS** setting. If needed, the setting can be changed. See "FORM" on page 19
8	Enter the trim setting.	The trim setting is automatic, according to the **PAGE SIZE** and **SET THICKNESS** settings. To change the setting, touch **TRIM**. See "TRIM" on page 19
9	Touch **CLOSE.**	
10	If needed, save the job settings to memory.	If the same job settings are used frequently, then save the job settings to memory. See "Save a job" on page 26.

Procedure for a Saved Job

1. Touch **LOAD & SAVE** 🗀.
2. Touch the job name or use the Up arrow and the Down arrow to select the job.
3. Touch **LOAD**.
4. Wait until the PowerSquare is ready.

Adjust the Stacker

Book Stacker

Check the Book Stacker is ready to accept books. See “Adjust the Book Stacker” on page 36.

Run the Job

Procedure

1. Make sure the adjustments on the PowerSquare are complete before you release the print job from the print queue.
2. Start the print job. The PowerSquare starts automatically.
3. Check the quality of the first book.
4. If the quality is not acceptable, make adjustments. See “Book Quality Problems” on page 43 for further information.

During the job

- Unload books from the stacker before the stacker is full. The PowerSquare stops and displays a message if the stacker is full.
- If the optional Book Stacker is fitted, see “Unload the Book Stacker” on page 37.
- Empty the trim bin from time to time. The PowerSquare displays a message if the trim bin is full. See “Empty the Trim Bin” on page 33.

CHAPTER 3 The User Interface

The user interface includes a colour touch screen and START/STOP buttons.

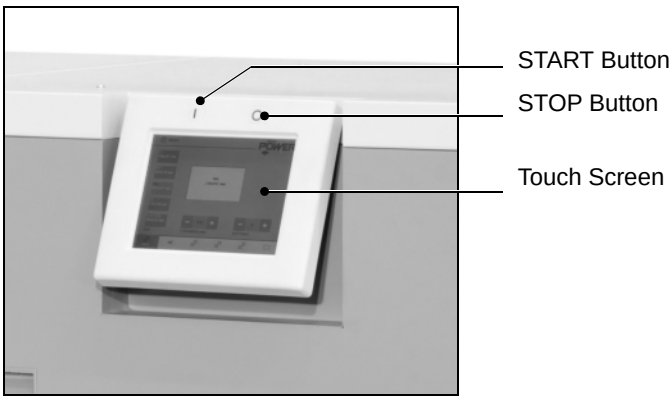


FIGURE 5. The User Interface

The Touch Screen

Introduction

Operate the touch screen with a fingertip. You can touch the screen with a blunt item, for example a palm-top ‘wand’ or the blunt end of a pen. Do not use too much force. A light touch is all that is needed.

CAUTION: *Do not operate the touch screen with a sharp object or with too much force. These actions can damage the touch screen.*

If you hear a ‘beep’ when you operate the touch screen, the selected function is not available. Some functions are not available when the machine is in operation.

Some functions and buttons are only available at certain access levels. See “ACCESS LEVEL” on page 24.

Power save

The touch screen has a power-save function. After several minutes without use, the brightness of the touch screen decreases. After several hours, the touch screen turns off.

Touch the screen to restore the normal brightness. The touch screen takes two or three minutes to reach full brightness.

Illustration

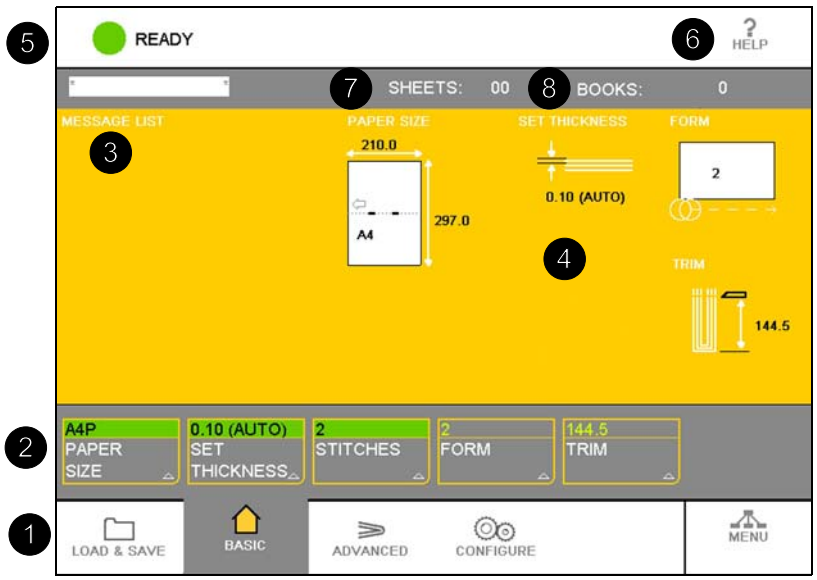


FIGURE 6. The Touch Screen

Component - Function Table

No.	Component	Function
1	Window Tabs	The touch screen buttons are divided into groups that have connected functions. Each group of buttons has a separate window. Touch the correct tab to select the window. **LOAD & SAVE** **BASIC** **ADVANCED** **CONFIGURE** **MENU**
2	Window Buttons	Each window contains a group of buttons. Touch the button to select the function.
3	Message List	Information and error messages are shown in the **MESSAGE LIST**. To display the information about a message, touch **HELP** then touch the message list. Use the right-arrow and left-arrow to see the help text for each message.
4	Job Mimic	The job mimic shows the current machine settings.
5	Status	The **STATUS** line shows the machine status.
	- GREEN	The PowerSquare is **READY** or **RUNNING**.
	- ORANGE	**PLEASE WAIT** - wait until the PowerSquare is ready. **ATTENTION** - the PowerSquare needs an action by the operator.
	- RED	The PowerSquare is in an **ERROR** condition.
6	Help	Help text is available on the touch screen. • Touch **HELP** then touch any button or tab on the screen. Information about that button or tab is displayed. • To display the information about a message, touch **HELP** then touch the message list. • Use the Up arrow and the Down arrow to scroll-up and scroll-down the screen. • Some text has more than one screen. Use the right-arrow and left-arrow to see the other screens. To leave the help-text, touch **HELP** or touch **X**.
7	Sheet Counter	The sheet counter shows the number of sheets in the gathering area. The counter starts again with each book.
8	Book Counter	The book counter shows the number of books made. The counter is reset to zero when the PowerSquare is turned off.

The Job Mimic

The job mimic shows the current machine status.

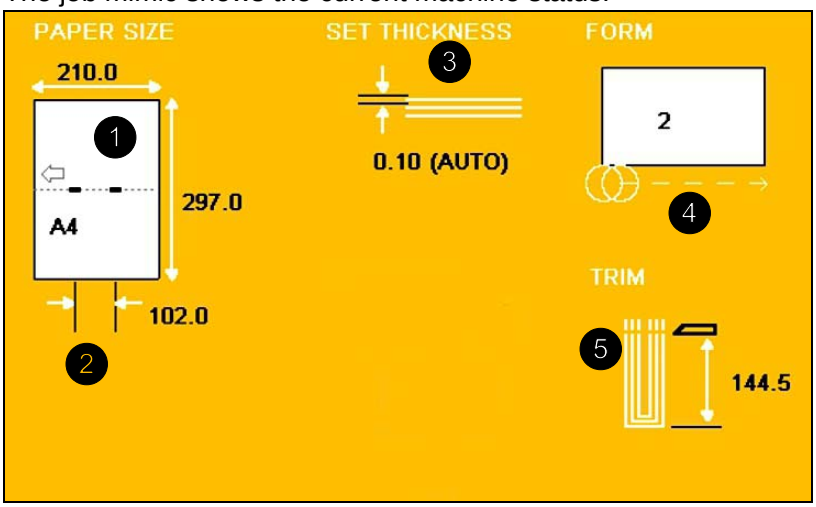
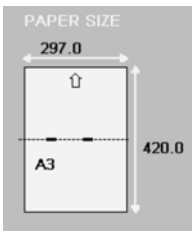
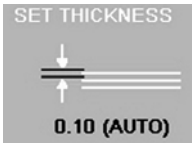
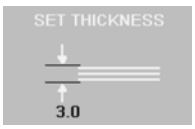
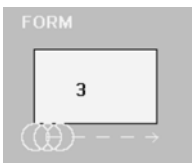


FIGURE 7. The Job Mimic

No.	Icon	Information
1	Paper Size 	The following items are shown • the size of paper • the format of the paper in the gathering area • the broken line shows the fold line • the small thick lines show the stitches • the arrow shows the original feed edge in the printer
2	Stitch Pitch	The stitch pitch is shown only when a non-standard setting is selected.

No.	Icon	Information
3	Sheet Thickness  or	The sheet thickness, in mm, is shown. Note that the arrows show a single sheet.
	Set Thickness  	The set thickness, in mm, is shown. Note that the arrows show the complete set.
4	Form  	The number of forms is shown. If the pressure is adjusted, the setting is shown in brackets. A red X shows that the form function is not active.
5	Trim 	The trim setting is displayed. A red X shows that the trim function is not active.

The BASIC Window

The **BASIC** ⌂ window gives you access to frequently-changed machine settings.

The BASIC Window Buttons

Button	Information
PAPER SIZE	Measure the accurate size of the printed paper before you make a book. Touch **PAPER SIZE** to enter the paper size. When the machine is in operation, you can adjust the **PAPER SIZE** by a maximum of +/- 1mm.
- PAGE DIRECTION	Touch **PAGE DIRECTION** to change the direction of the paper to Landscape or Portrait.
- ROTATE	Touch **ROTATE** to set the sheet rotation **ON** or **OFF**. If you select A4 portrait (USA: 8.5x11), **ROTATE** is set to **ON** automatically.
- PRESETS	Touch **PRESET** to select a standard paper size.
SET THICKNESS	Use the **SET THICKNESS** window to define the thickness of the set. Either: Measure the thickness of the set before you make a book. Touch **SET THICKNESS** and enter the value. Or: Use **AUTO** and **SHEET THICKNESS** to automatically calculate the **SET THICKNESS**.
- AUTO	Touch **SET THICKNESS > AUTO** to select automatic adjustment of **SET THICKNESS**. Then enter the **SHEET THICKNESS**. The sheets are counted when they enter the machine. The **SET THICKNESS** is calculated from the **SHEET THICKNESS** and the sheet count.
- SHEET THICKNESS	Use **SHEET THICKNESS** to enter the measured thickness of one sheet of the paper. **SHEET THICKNESS** determines the maximum number of sheets that is allowed. This number is shown on the screen.
STITCHES	Touch **STITCHES** to select the number of stitches. Available options are **1** - **6**. The machine automatically calculates the position of the stitches according to the size of the paper. Select **0** to turn off the stitch function.
- STITCH PITCH	The stitch pitch is the space between the stitches. The machine automatically calculates the stitch pitch according to the size of the paper. If a non-standard stitch pitch is needed, use **STITCH PITCH** to make the adjustment.

Button	Information
- AUTO	Touch **AUTO** to select the default stitch pitch.
FORM	To make the square spine of the book, pressure is applied to the spine. This process is called forming. Touch **FORM** to specify the amount of spine form. To make a good spine on different paper types, the amount of spine form can be changed. To change the amount of spine form • Touch **NUMBER** to change how many times the spine is processed • Touch **PRESSURE** to change the pressure
- AUTO	Touch **AUTO** to select the optimum amount of spine form, according to the set thickness.
- NUMBER	Touch **NUMBER** to select how many times the form roller processes the spine. The available options are 1, 2, 3 or 4. An increase in **NUMBER** increases the time taken to form the spine and can decrease the production rate for thin books. Alternatively, increase the **PRESSURE**.
- PRESSURE	Touch **PRESSURE** to increase or decrease the pressure used to form the spine. Touch **+** to increase the amount of spine form. Touch **-** to decrease the amount of spine form. The range is -9 to +9. The default setting is 0.
- THRESHOLD	Use **THRESHOLD** to choose if a square spine is formed. If the **SET THICKNESS** value is thinner than the **THRESHOLD** value, a square spine is not formed. If the **SET THICKNESS** value is thicker than the **THRESHOLD** value, a square spine is formed. If the **SET THICKNESS** value is 1.5mm or thicker, a square spine is always formed. The default value is 0.8mm. The allowed range is 0.1mm to 1.5mm
TRIM	The trim dimension is calculated automatically according to the **PAPER SIZE** and **SET THICKNESS**. If needed, the trim dimension can be changed. Touch **TRIM** to adjust the size of the finished book after the fore-edge is trimmed. The maximum trim is 28 mm. The trim function can be turned off.
- AUTO	Touch **AUTO** to select the default trim position.

The LOAD & SAVE Window

The **LOAD & SAVE** 🗀 window lets you save and reload job settings. Each job is given a name. The jobs are displayed in a list on the screen.

Touch the job name or use the Up arrow or Down arrow to make the selection.

The LOAD & SAVE Window Buttons

Button	Information
SAVE	Touch **SAVE** to save the current settings. An on-screen keyboard is displayed. Enter the job name. Touch **OK** or **CLOSE**. The new job appears in the list of saved jobs. You can reload a saved job to decrease set-up time in the future.
- REPLACE	If you change the settings of a saved job, touch **REPLACE** to save the new settings.
- CANCEL	Touch **CANCEL** if you do not need to save a job that you have changed.
- SAVE NEW	If you change the settings of a saved job, touch **SAVE NEW** to save the new settings as a new job. An on-screen keyboard is displayed. Enter the new job name. Touch **OK** or **CLOSE**. The original job is not changed. If the job name is not changed before **OK** or **CLOSE** is touched, the job will be saved with the current name followed by an asterisk *.
JOB DETAILS	**JOB DETAILS** shows the settings for each saved job. Select the job that you need to view from the job list. Touch **JOB DETAILS** to see a summary of the job settings.
LOAD	Touch the job name or use the Up arrow or the Down arrow to make the selection. Touch the **LOAD** button
PADLOCK SYMBOL	The padlock symbol shows when a saved job is locked or unlocked. There is a small padlock symbol next to each locked job. To lock or unlock a job 1. select the job from the job list 2. touch the large key symbol. A padlock symbol displayed in light grey shows that a job has been locked by a supervisor to prevent changes to the settings.
DELETE	To delete a particular job it must be unlocked. Touch the job name or use the Up arrow or Down arrow to make the selection from the job list. Touch and hold **DELETE**. A red line appears. The red line fills from left to right. Hold **DELETE** until the red line reaches the right-hand side.

Button	Information
VIEW OF JOB LIST	**VIEW OF JOB LIST** changes the order that saved jobs are listed. There is a line between Factory Template jobs and jobs saved by the operator. The Factory Template jobs are at the top of the list
- A->Z	Touch **A->Z** to list the jobs in alphabetical order.
- BY USE	Touch **BY USE** to list jobs in the order they were last used. The most recently-run job is at the top of the list.
- BY INDEX	Touch **BY INDEX** to list jobs in numerical order. the machine gives a number to all jobs that are saved.

The ADVANCED Window

The **ADVANCED** ⩥ window gives you access to special machine functions.

The ADVANCED Window Buttons

Button	Information
RE-REF	If the machine calibration appears incorrect or if an 'axis moving' error message remains on the screen, touch **RE-REF** to re-reference the adjustment axes. The adjustment axes return to the current settings. At intervals, the machine will re-reference the axes during the set-up procedure.
STITCHER UP	Touch **STITCHER UP** before you lubricate the stitch head. This action moves the stitch head to the correct position for lubrication.
PURGE SET	If the print job has been cancelled, a set or part of a set can remain in the gathering area. Touch START ⓘ, then touch **PURGE SET** to clear the set from the machine. The book is not stitched or trimmed. According to the type of error that occurred, there can be a pause of 7 seconds before the **PURGE SET** button will operate. For safety reasons, this function is disabled when the gathering area cover is open.
- MAKE BOOK	If there is a set in the gathering area, you can make it into a book. Caution: Do not use this option if **SET THICKNESS** is set to **AUTO**. Touch START ⓘ, then touch **MAKE BOOK** to clear the set from the machine. The book is stitched and trimmed. According to the type of error that occurred, there can be a pause of 7 seconds before the **MAKE BOOK** button will operate. For safety reasons, this function is disabled when the gathering area cover is open.

The CONFIGURE Window

The **CONFIGURE** window lets you make changes to the configuration of the machine.

Some functions and buttons are only available at certain access levels, see “ACCESS LEVEL” on page 24.

The CONFIGURE Window Buttons

Button	Information	Operator	Supervisor
○ Hidden	● Active ⊘ Visible		
MACHINE OPTIONS	Touch **MACHINE OPTIONS** to view the general machine set-up. Some of the settings can be changed, depending on the current access level.	○	●
- MEASURE-MENT	Select ‘mm’ or ‘inch’ as the unit of measurement. To get best accuracy, use millimetres to measure the set.	○	●
- STITCH SENSOR	There is a sensor that checks for stitches. Touch **STITCH SENSOR** to turn the stitch sensor on or off. The default setting is ON.	○	●
- PRESET PAPER SIZES	The preset paper sizes can be either ISO A sizes or US paper sizes. To select which preset paper sizes are available, touch the relevant button.	○	●
- PBS INSTALLED	Touch **PBS INSTALLED** to switch off communication to the Book Stacker. Only do this if the Book Stacker is disconnected.	○	●
SHUTTLE	Touch **SHUTTLE** to make adjustment to the tamper.	○	●
- TAMPER DELAY	This button is used by the service engineer.	○	⊘
- TAMPER TIME	**TAMPER TIME** adjusts the time that the tamper touches the set. An increase in **TAMPER TIME** causes a decrease in the production rate for thin books.	○	●
FORM SETUP	This button is used by the service engineer.	⊘	⊘

The MENU Window

MENU shows the settings that are not changed during day-to-day operation. These settings include

- Change the Access Level
- Change the display language
- Advanced machine settings that are accessed by a person who has the correct access-code.

The MENU Window Buttons

Button	Information
ACCESS LEVEL	The Touch Screen has five different access levels • Operator • Supervisor • Service • Distributor • Factory Touch **ACCESS LEVEL** and select the correct level from the list. The last three levels are protected by access codes. To protect the job settings, the supervisor level allows jobs to be locked.
CURRENT LANGUAGE	Touch one of the flags to select the language you need.
AXES	Touch **AXES** to re-reference individual axes. Supervisor access level is needed for this function. Other functions on this button are used by the service engineer.
BRIDGE	Touch **BRIDGE** to re-reference the bridge axes. Supervisor access level is needed for this function. Other functions on this button are used by the service engineer.
SERVICE OPTIONS	This button is used by the service engineer.
TEST	This button is used by the service engineer.
COUNTERS	The counters display the • number of books that have been made • number of sheets that have been processed • number of stitches that have been used
- RESET	Touch **RESET** to zero the book, sheet and stitch counter. Use **RESET** after operator maintenance to the stitch head. Touch and hold **RESET**. A red line appears. The red line fills from left to right. Hold **RESET** until the red line reaches the right-hand side.

CHAPTER 4 Standard Tasks

Introduction

This chapter describes the standard tasks that are needed in the day-to-day operation of your PowerSquare.

Load and Save the Job Settings

Introduction

The current job settings can be saved to the memory and reloaded for use again at a later date. Load the ‘Default Job Template’ to reset the PowerSquare to normal settings.

Save a job

1. Touch **LOAD & SAVE** 🗀 **> SAVE.**
2. If these options appear, select one.
   REPLACE to over-write the previous job with the current job settings.
   SAVE NEW to save the current job with a new name.
   CANCEL to cancel the job save.
3. Enter the name for the job on the keyboard
4. Touch **OK** or **CLOSE**.

Load a job

1. Touch **LOAD & SAVE** 🗀.
2. Touch the job name or use the Up arrow and the Down arrow to select the job.
3. Touch **LOAD**.
4. Wait until the PowerSquare has made the adjustments.

Reset the PowerSquare to default settings

1. Touch **LOAD & SAVE** 🗀.
2. Select the **Default Job Template** from the list of jobs.
3. Touch **LOAD**.
4. Touch **YES**.

Adjust the Stitch Pitch

Introduction

The stitch pitch is the space between the stitches. The machine automatically calculates the stitch pitch according to the size of the paper and the number of stitches. The stitches are inserted symmetrically on the spine of the book.

If a non-standard stitch pitch is needed, use **STITCH PITCH** to make the adjustment.

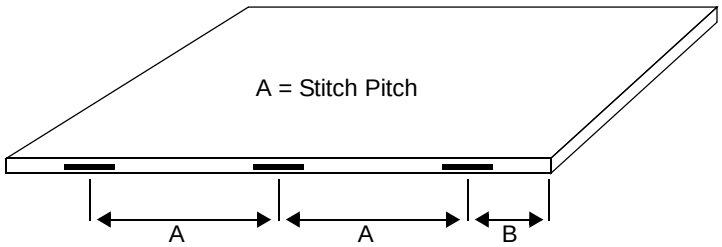


FIGURE 8. Stitch Pitch

Limitations:

- The minimum stitch pitch ‘A’ is 25mm.
- The minimum distance from the centre of the stitch to the edge of the sheet ‘B’ is 15mm.

When to do

If you need the PowerSquare to insert the stitches in a non-standard position. For example, to keep the stitches away from the text on the spine of the book.

Select a non-standard stitch pitch

1. Touch **BASIC** ⌂ > **STITCHES**
2. Touch **AUTO**. The **STITCH PITCH** value goes green.
3. Change the stitch pitch value.
   Either use the ‘**+**’ and ‘**–**’ or touch the green stitch pitch value to open a numeric keypad.
4. Touch **STITCHES** to close the window.

The stitch pitch value is displayed in the job mimic and on the **STITCHES** button.

Select a standard stitch pitch

1. Touch **BASIC** ⌂ > **STITCHES**
2. Touch **AUTO** to select **ON**.
3. Touch **STITCHES** to close the window.

The stitch pitch value is not displayed in the job mimic or on the **STITCHES** button.

Open the Connecting Bridge Cover

When to do

If a machine error occurs, or for maintenance.

- To clear a paper jam

The PowerSquare will not stop if you open the connecting bridge cover.

FIGURE 9. Connecting Bridge Cover

WARNING: *Keep your hands, clothing and hair away from the belts.*

Procedure

- Lift the connecting bridge cover.

Open and Close the Folder Cover

When to do

If a machine error occurs, or for maintenance.

- To access the stitch area
- To access the folder area

Note

The folder cover has an interlock switch. The PowerSquare stops if you open the folder cover.

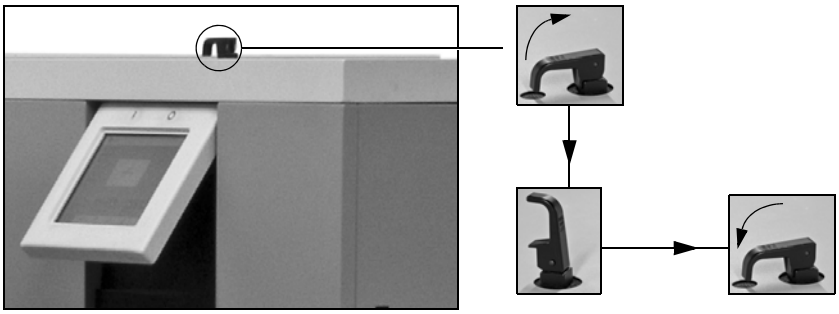


FIGURE 10. Unlock and Lock the Folder Cover

Open the Folder Cover

1. Lift the black locking handle against the spring pressure.
2. Turn the handle through 90° to unlock.
3. Lift the folder cover carefully to the vertical.

Close the Folder Cover

CAUTION: *Check that the folder cover will not hit the clincher frame locking-handle when you close the folder cover. If necessary, lift and rotate the clincher frame locking-handle to a new position (See Figure 12).*

1. Lower the folder cover.
2. Turn the handle through 90° to lock.
3. Close the locking handle to lock the folder cover.

Lift and Lower the Clincher Frame

When to do

If a machine error occurs, or for maintenance.

- To clear a paper jam in the stitch area
- To unlock the PowerSquare main deck

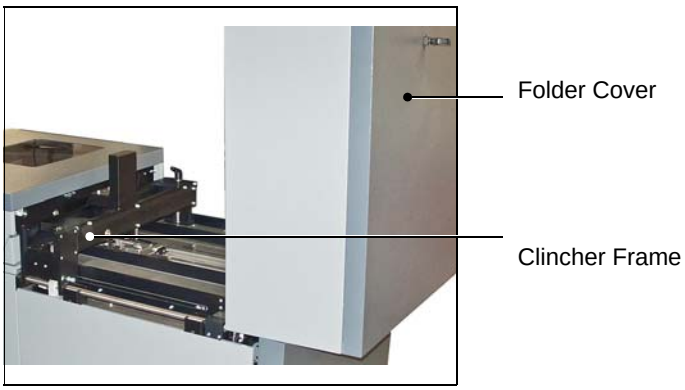


FIGURE 11. Folder Cover in the vertical position.

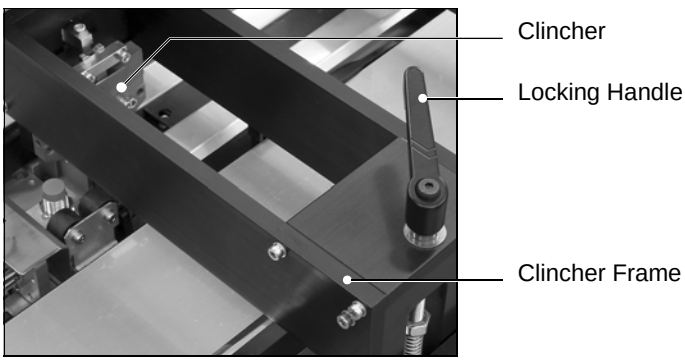


FIGURE 12. Clincher Frame Components

Lift the Clincher Frame

1. Open the folder cover.
2. Turn the locking handle to the left , until the thread is disengaged.
3. Lift the clincher frame to the vertical position.

Lower the Clincher Frame

1. Lower the clincher frame.
2. Turn the locking handle to the right , until the handle is tight.
3. Check that the locking handle will not be hit by the folder cover when you close the folder cover. The locking handle should point towards the middle of the machine. If necessary, lift and rotate the locking-handle to a new position.
4. Close the folder cover.

Open the Gathering Area Cover

When to do

If a machine error occurs, or for maintenance.

- To access the gathering area

The PowerSquare will stop if you open the gathering area cover.

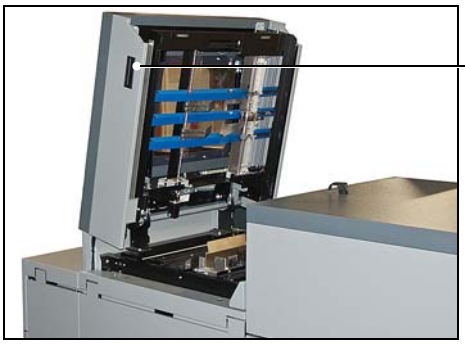


FIGURE 13. Gathering Area Cover - Open

Procedure

Use the handle to lift the gathering area cover.

Lift the PowerSquare Main Deck

When to do

If a machine error occurs, or for maintenance.

- To access the stitch head
- To access the former area
- To access the trim area

WARNING: *Keep your hands and fingers clear when you lift the main deck.*

CAUTION: *Do not lift the main deck if the error message* **FOLD BLADE NOT PARKED** *is shown on the screen.*

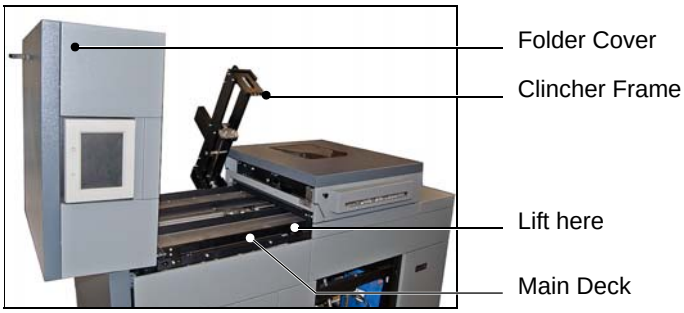


FIGURE 14. Lift the PowerSquare Main Deck

Before you begin

Check the touch screen for the error message **FOLD BLADE NOT PARKED**.

If the error message is displayed:	Open the folder cover, remove any paper, close the folder cover. Touch START ⏻, then follow the instructions on the screen. Wait for the message to clear. Then continue with the procedure below.
If the error message is not displayed:	Continue with the procedure below.

Procedure

Step	Action	Information
1	Open the folder cover.	
2	Lift the clincher frame.	See “Lift the Clincher Frame” on page 30.
3	Lift the PowerSquare main deck.	The main deck lifts to approximately 60°. The weight of the main deck is supported by a gas strut. Let the gas strut control the movement of the main deck.

Empty the Trim Bin

When to do

- An error message **CHECK THE TRIM BIN** is displayed on the touch screen when the trim bin is full.
- You can empty the trim bin when you choose. For example, before you start a print job.

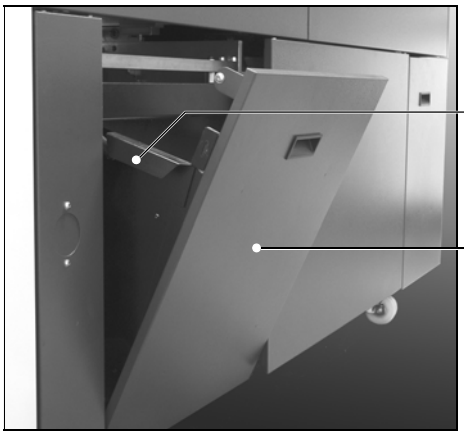


FIGURE 15. Trim Bin Open

Note

The PowerSquare operates with the trim bin removed for a short time. The printer waits while the trim bin is removed, then continues when the trim bin is replaced. To prevent lost production, you must remove, empty and return the trim bin to the PowerSquare as quickly as possible.

Procedure

1. Use the handle to open the trim bin.
2. Use the side handles to lift and remove the trim bin.
3. Empty the trim bin
4. Fit the bottom of the trim bin over the mounting rail.
5. Push the trim bin closed at the top.

Open the Stitch-Wire Cabinet

When to do

- To see if the stitch-wire is jammed or finished. An error message is displayed on the touch screen when the stitch-wire is jammed or finished.
- To install a new stitch-wire spool. See “Install New Stitch-wire” on page 94.

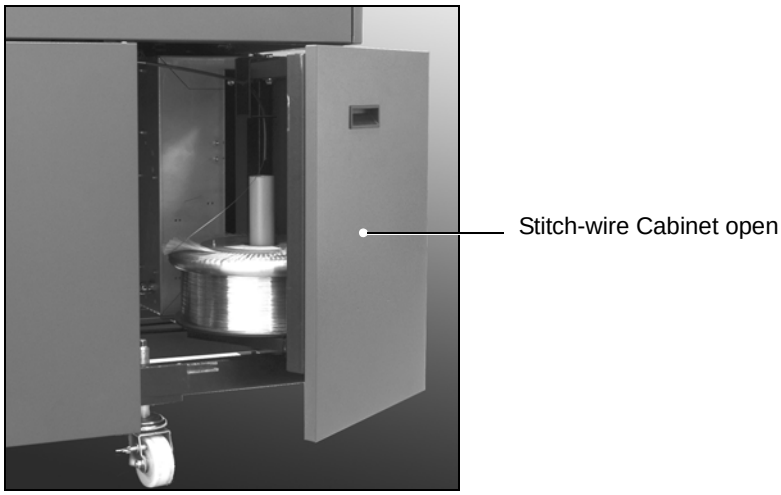


FIGURE 16. Stitch-wire Cabinet

Procedure

1. Open the stitch-wire cabinet cover. The cover is held closed by a magnetic catch.

Adjust the Stacker

The stacker must be adjusted according to book thickness and book size.

When to do

- When you start a new job
- If the books do not stack correctly

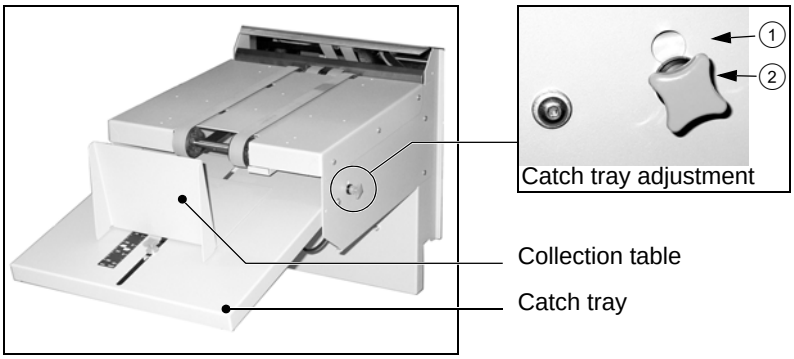


FIGURE 17. The stacker

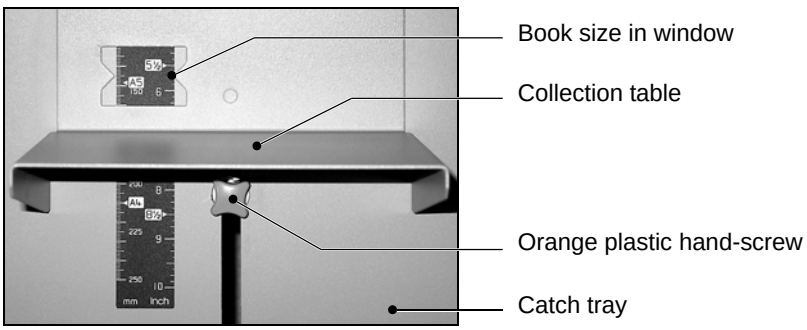


FIGURE 18. Collection table position

Procedure

Step	Action	Information
1	Set the catch tray angle according to the thickness of the book.	For books that are 1.5mm thick or less, use position 1. For books that are more than 1.5mm thick, use position 2. (See Figure 17)
2	Set the collection table position according to the size of the book.	Read the setting through the window. (See Figure 18)

These settings are recommendations. The settings can change with the size, thickness and material of book. Make further adjustment if necessary.

Adjust the Book Stacker

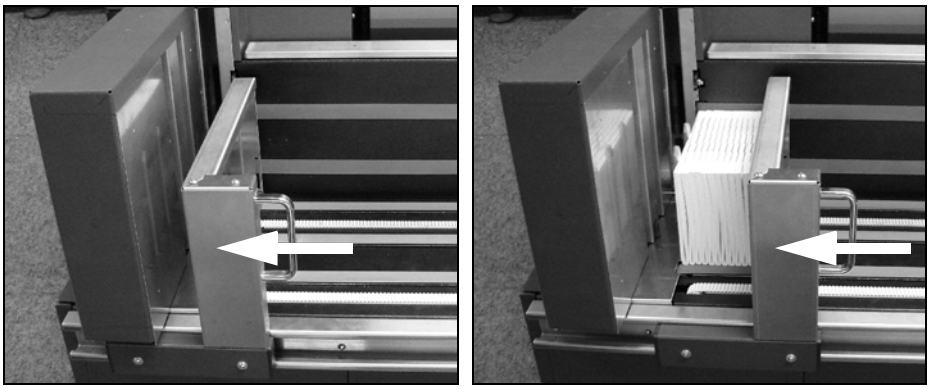


FIGURE 19. The Book Stacker - push the book support to the left

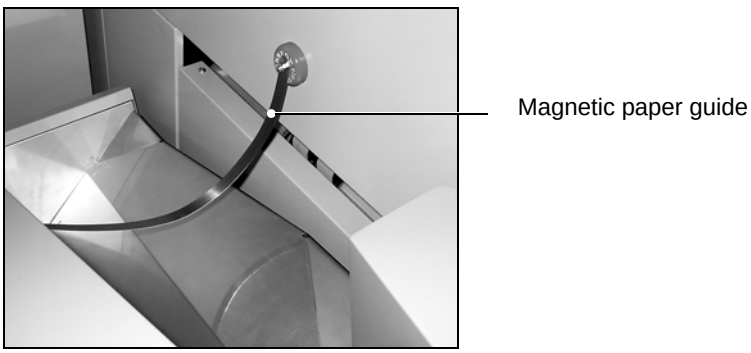


FIGURE 20. The magnetic paper guide for thin books

Procedure

1. Before you use the Book Stacker, make sure the book support is pushed completely to the left. There is no need to empty the Book Stacker until the stacker is full.
2. If you are making thin books, attach the magnetic paper guide above the book outfeed on the PowerSquare. Insert the loose end of the magnetic paper guide into the slot opposite (See Figure 20).

Unload the Book Stacker

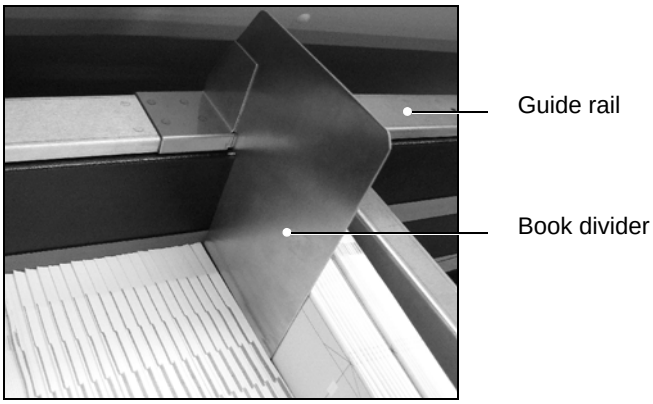


FIGURE 21. The book divider

Procedure

1. If required, insert the book divider so that the stack does not slip while you unload the books.
2. Remove the books.
3. Push the book support completely to the left (See Figure 19).
4. Remove the book divider until it is needed. Store the book divider on the right-hand end of the guide rail of the stacker.

Move the Book Stacker

The Book Stacker locks in position onto the PowerSquare. The docking latch is released by a foot pedal.

When to do

- to access the mains ON/OFF switch
- to replace the mains input fuses

Procedure

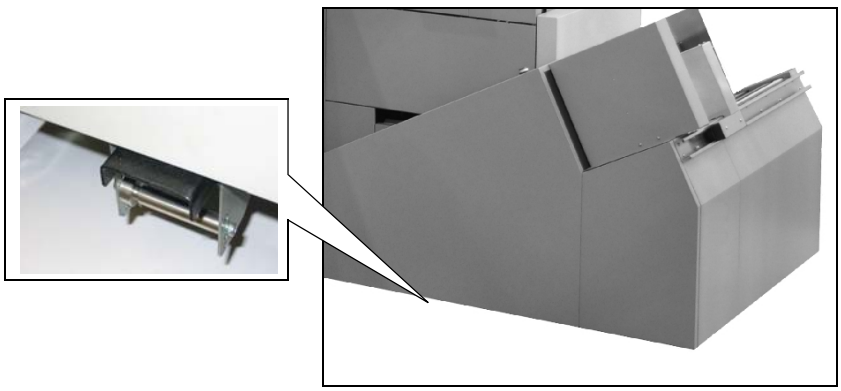


FIGURE 22. The Book Stacker docking latch

1. Use your foot to release the docking latch.
2. Rotate the Book Stacker away from the PowerSquare as far as the safety chain allows.

   Note: *The safety chain prevents damage to the power and communication cables.*
3. When needed, rotate the Book Stacker back to the docked position, the latch will click closed.

Operate the PowerSquare offline

You can hand feed sets into the PowerSquare if offline operation is needed. The machine operates when you push the two buttons.

When to do

- To check the settings are correct
- To make a small number of books offline

WARNING: *Do not put your hands in the gathering area when the machine operates. Use two hands to push the buttons. For safety reasons, this task is for a single operator. Do not let another person help you.*

CAUTION: *Do not use this function when* **SET THICKNESS** *is set to* **AUTO***. The* **SET THICKNESS** *must be the correct setting for the book.*

Procedure

1. Enter the correct settings on the touch screen, according to the size and thickness of the job.
2. Touch START .
3. Open the gathering area cover.
4. Put the set in the gathering area with the middle pages of the book face up.
5. Press the two orange buttons and hold for 9 seconds, or until you hear the folder operate. The time interval changes according to the number of stitches.

CHAPTER 5 Error Conditions, Problems and Solutions

This chapter describes how to correct problems that can occur on your PowerSquare. If a problem continues, contact your Watkiss service engineer.

Printer Error

If a paper jam or other error occurs in the printer, the printer and the PowerSquare stop.

Procedure

1. Clear the printer error.
2. Follow the instructions on the printer.
   If the printer tells you to remove paper from the PowerSquare, then:
   Check the Touch **START** to start the machine.
   Touch **ADVANCED > PURGE SET > PURGE SET**.
   The partial book is delivered to the stacker. Discard the book.
3. Check the PowerSquare screen. If an error message is displayed, take the corresponding action. See “Message List” on page 55.

PowerSquare Error

If a paper jam or other error occurs in the PowerSquare, the printer and the PowerSquare stop. The type of PowerSquare error is displayed on the touch screen. See “Message List” on page 55.

Procedure

1. Clear the PowerSquare error. The error message on the touch screen tells you about the error.
2. Remove all sheets from the PowerSquare.
3. Follow the instructions on the printer.

General Problems

The PowerSquare does not start

Is the touch screen illuminated?

No **Yes**

- Are error messages displayed on the touch screen?

  No **Yes**

  - See “Message List” on page 55

  Is there an error message on the printer?

  No **Yes**

  - Correct the printer error.
    If the printer error message is ‘Check Third Party Finishing Device’ or ‘check custom’, then check for an error message on the PowerSquare touch screen.
    If the problem continues, then call your service engineer.

  Turn OFF and turn ON the PSQ.
  If the problem continues, then call your service engineer.

Is the touch screen in power-save mode?
See “Power save” on page 14. Touch the screen to restore the normal brightness.

No **Yes**

- Go back to the start of this fault-finding table.

Is the mains-power ON/OFF switch illuminated?

No **Yes**

- Call your service engineer.

Is the PowerSquare turned ON and connected to the mains power supply of the correct type and voltage?

No **Yes**

- Replace the fuse at the mains input. See “Change the Fuses - PowerSquare” on page 77
  If the problem continues, then call your service engineer.

Connect the PowerSquare to the mains supply of the correct type and voltage and then turn the machine ON.

The touch screen does not work

Is the touch screen in power-save mode?
See “Power save” on page 14. Touch the screen to restore the normal brightness.

No **Yes**

- No further action is needed.

Calibrate the touch screen.
See “Calibrate the Touch Screen” on page 77.

Book Quality Problems

Paper Size and Book Quality Instructions

- Careful measurement of the paper size, and the set or sheet thickness, is important.
- To make an accurate book you must enter accurate paper dimensions into the touch screen.
- To get best accuracy, use millimetres to measure the set. See page 9.
- Measure the size of the printed paper. The paper dimension changes when the paper is printed.
- If the book is made from several different types of paper, make sure the different paper types are all the same size. If the size of the paper is different, an accurate book cannot be made.
- The paper must be cut accurately. If the sheets are not cut squarely, an accurate book cannot be made.
- Adjustments to the **FORM** settings can be necessary for some types of paper.

Machine Adjustments

Machine adjustments can be made while the machine is in operation.

The **PAPER SIZE** adjustment is limited to a maximum of +/- 1mm when the machine is in operation.

Untidy book problem

- The finished book is not tidy
- The sheets are not aligned
- The book is not folded squarely.

Are the covers of the books and the insides of the books made from the same paper-weight and paper-type?

Yes **No**

Accurately measure the different papers. Are the different types of paper exactly the same size?

Yes **No**

You must use paper that is the same size.

Is the paper within specification?
See “Specifications” on page 99.

Yes **No**

Do not use paper that is outside the specification.

Have you accurately measured the paper-size after printing?

Yes **No**

Print a sample to the stacker and measure the printed paper. Accurate measurement will improve book quality.

Have you entered the measured **PAPER SIZE** into the touch screen?

Yes **No**

Enter the correct, measured **PAPER SIZE** into the touch screen.

Have you accurately measured either the set thickness or the sheet thickness?

Yes **No**

Measure either the set thickness or the sheet thickness and enter the correct **SET THICKNESS** or **SHEET THICKNESS** into the touch screen.

Have you entered either the measured set thickness or sheet thickness into the touch screen?

Yes **No**

Enter the correct **SET THICKNESS** or **SHEET THICKNESS** into the touch screen.

Touch **ADVANCED > RE-REF > RE-REF** to re-reference the machine.
Does the problem continue?

Yes **No**

Further action is not needed.

Is the paper thin and/or curly?

Yes **No**

Call your service engineer

Ⓐ

Ⓐ

Increase the **TAMPER TIME** to give the paper more time to settle. Supervisor access level is needed (see page 24). On thin books, this may reduce the production speed. Touch **CONFIGURE > SHUTTLE**. Increase the **TAMPER TIME** in increments of 200.

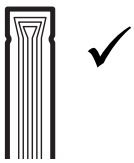
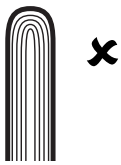
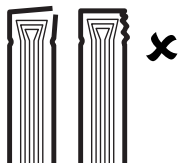
Does the problem continue?

Yes **No**

Further action is not needed.

Call your service engineer

Spine form problems

Correct spine-form	Incorrect spine-form. The square spine is part formed or not formed.	Incorrect spine-form. The spine is over-formed and the book is damaged.
		

Is the spine-form different at each end of the spine?

Yes **No**

The spine is incorrect along the full length. Is the folder cover closed fully?

Yes **No**

Lock the folder cover. See “Close the Folder Cover” on page 29.

Is the **SET THICKNESS** or **SHEET THICKNESS** correct?

Yes **No**

Measure the **SET THICKNESS** or the **SHEET THICKNESS** and enter the value in the touch screen. Does the problem continue?

Yes **No**

Further action is not needed.

Check the **THRESHOLD** setting. If the **SET THICKNESS** is less than the **THRESHOLD**, a square spine is not formed. See “THRESHOLD” on page 19. Adjust **THRESHOLD** if needed. Does the problem continue?

Yes **No**

Further action is not needed.

Adjust the **PRESSURE** setting. Increase the **PRESSURE** to give more spine-form and decrease the **PRESSURE** to give less spine-form.
Does the problem continue?

Yes **No**

Further action is not needed.

Adjust the **NUMBER** of forms setting. Increase the **NUMBER** of forms to give more spine-form and decrease the **NUMBER** of forms to give less spine-form. Does the problem continue?

Yes **No**

Further action is not needed.

Load a Default Job. This will reset the **FORM** settings, including **PRESSURE**, **NUMBER** and **THRESHOLD**. See “Reset the PowerSquare to default settings” on page 26.
Does the problem continue?

Yes **No**

Ⓐ Ⓑ Ⓒ

Ⓐ Ⓑ Ⓒ

Further action is not needed.

Run a standard job using 80gsm/20# bond paper.
Does the problem continue?

Yes **No**

The problem is caused by the cover material or the finish on the cover. Change the cover material.

Re-reference the machine.
Touch **ADVANCED > RE-REF > RE-REF** to re-reference the machine.
Does the problem continue?

Yes **No**

Further action is not needed.

Call your service engineer.

Stitching problems - the book is not stitched

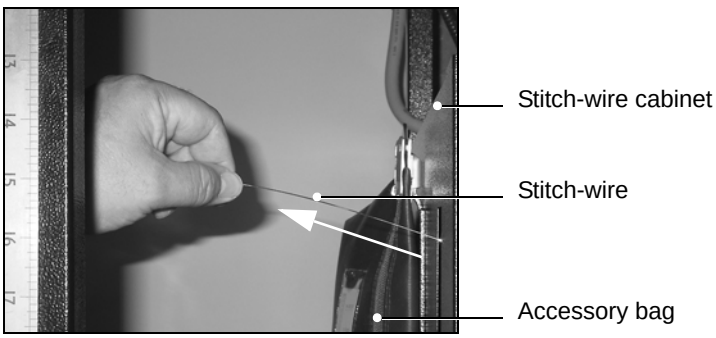


FIGURE 23. Pulling stitch-wire

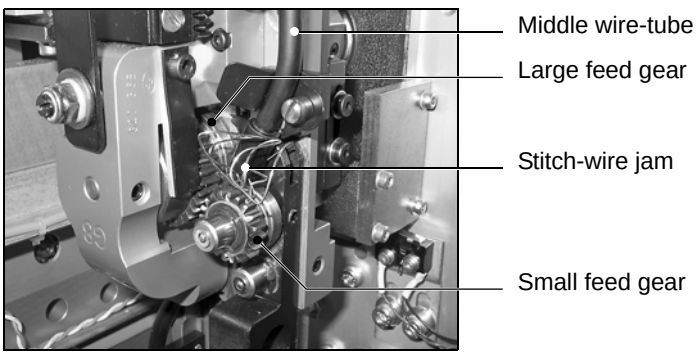


FIGURE 24. Stitch-wire jam

Is the number of **STITCHES** set between 1 and 6?

Yes No

Select **STITCHES** 1 - 6. See “STITCHES” on page 18.

Check the stitch-wire spool. Is there stitch-wire present?

Yes No

Load a new stitch-wire spool. See “Install New Stitch-wire” on page 94.

Open the PSQ main deck. See “Lift the PowerSquare Main Deck” on page 31.

Pull approximately 100-150mm of stitch-wire from the stitch wire spool. See Figure 23 on p.47.
Does the wire move freely?

Yes No

Open the stitch-wire cabinet.

Discard any tangled wire and reload the stitch-wire spool. See “Install New Stitch-wire” on page 94.

Check the stitch head for stitch-wire jams. See Figure 24 on p.47.

Is the stitch head clear of stitch-wire jams?

Yes No

Clear the stitch-wire jam. See “Clear a Stitch-wire Jam” on page 72.

Lubricate the stitch head. See “Lubricate the Stitch Head” on page 89.

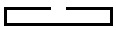
Does the problem continue?

Yes No

Further action is not needed.

Call your service engineer

Stitching problems - the book is badly stitched

A correctly formed stitch: 

- has equal leg length
- has straight legs
- the distance between the ends of the stitch legs is approximately 1mm, the distance can vary by +/- 0.5mm
- has a flat crown

Is the stitch formed correctly?

Yes **No**

Call your service engineer

The stitches should be aligned centrally on the spine.

Are the stitches positioned correctly?

Yes **No**

Are the covers of the books and the insides of the books made from the same paper-weight and paper-type?

Yes **No**

Accurately measure the different papers. Are the different types of paper exactly the same size?

Yes **No**

You must use paper that is the same size.

Is the paper within specification?
See “Specifications” on page 99.

Yes **No**

Do not use paper that is outside the specification.

Have you accurately measured the paper-size after printing?

Yes **No**

Print a sample to the stacker and measure the printed paper. Accurate measurement will improve book quality.

Have you entered the measured **PAPER SIZE** into the touch screen?

Yes **No**

Enter the correct, measured **PAPER SIZE** into the touch screen.

Touch **ADVANCED > RE-REF > RE-REF** to re-reference the machine.
Does the problem continue?

Yes **No**

Further action is not needed.

Call your service engineer

Further action is not needed.

Trimming problem - the book is not trimmed

Is the **TRIM** option turned off?

No **Yes**

Turn on the **TRIM** option.

Is **AUTO** turned off in the **TRIM** window?

No **Yes**

Set **TRIM** to **AUTO**.

Does the problem continue?

Yes **No**

Further action is not needed.

If you need to use a custom trim size, enter the trim dimension in the **TRIM** window. Make sure the size is not larger than the book size, or the book will not be trimmed.

Touch **ADVANCED > RE-REF > RE-REF** to re-reference the machine.
Does the problem continue?

Yes **No**

Further action is not needed.

Call your service engineer.

Trimming problem - the book is not trimmed to the correct size

Is **TRIM** turned on?

Yes **No**

Turn on the **TRIM**.

Make sure the size is not larger than the book size, or the book will not be trimmed.

Is the correct trim size entered in the touch screen?

Yes **No**

Enter the correct size in the touch screen.

Re-reference the machine.
Touch **ADVANCED > RE-REF > RE-REF** to re-reference the machine.
Does the problem continue?

Yes **No**

Further action is not needed.

Call your service engineer

Trimming problem - the book is not trimmed square

Open the trim stop guard and check for paper trimmings. See “Clear paper from the trim stop” on page 98.

Is the trim stop clear of paper trimmings?

Yes **No**

Clear paper from the trim stop.

Does the problem continue?

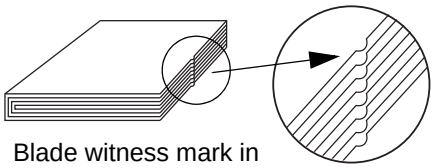
Yes **No**

No further action is needed.

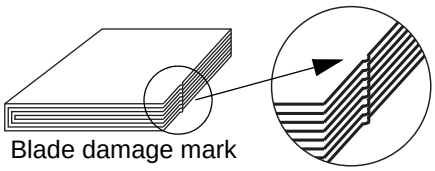
Call your service engineer

Trimming problem - poor trim quality

The trim process uses a double-edge blade to cut thick books. This can leave a small mark in the centre of the trimmed edge. The visibility of this mark will depend on the paper quality and characteristics.



Blade witness mark in the centre of the book



Blade damage mark

Are there marks on the trimmed edge other than the blade witness mark?

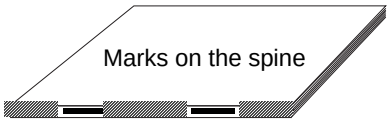
No **Yes**

| Call your service engineer

No further action is needed

Dirty marks on book

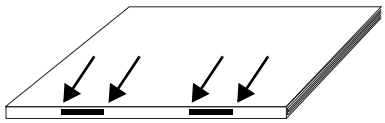
Are there dirty marks on the spine?



No **Yes**

Clean the former roller.
See “Clean the Former Roller” on page 83.

Are there grease or oil spots on the spine of the book?

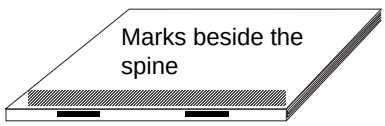


Grease marks near the stitches

No **Yes**

Clean grease from the top of the stitch head.
See “Clean excess grease from the Stitch Head” on page 88.

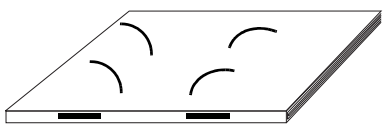
Are there dirty marks on the cover of the book near to the spine?



No **Yes**

Clean the polyurethane form strips.
See “Clean the Polyurethane Strips in the Form Clamp” on page 84.

Are there curved dirty marks on either the front or rear cover of the book?



Curved marks on the book

No **Yes**

Clean the trimmings removal fingers.
See “Clean the Trimmings-removal Fingers” on page 86.

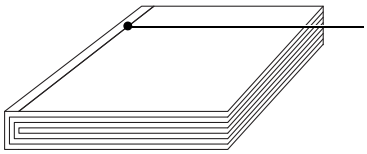
Print a sample to the printer stacker. Is the printer the cause of the dirty marks?

No **Yes**

Printer service is required.

Call your service engineer.

Damaged book



Are there damage marks on the cover of the book near to the spine, from the form clamp, that are worse than the normal witness mark?

No **Yes**

Run a standard job using 80gsm/20# bond paper.
Does the problem continue?

Yes **No**

The problem is caused by the cover material or the finish.
Change the cover material.

Call your service engineer.

Is the spine torn or creased?

No **Yes**

The spine is over-formed.
See “Spine form problems” on page 46.

Is there damage to the spine at the stitch positions or is the cover falling off?

No **Yes**

Run a standard job using 80gsm/20# bond paper.
Does the problem continue?

Yes **No**

The problem is caused by the cover material or the finish.
Change the cover material.

Call your service engineer.

Print a sample to the printer stacker and inspect the pages.
Is the printer the cause of the damage?

No **Yes**

Printer service is required.

Call your service engineer.

Message List

Information and error messages are shown in the message list.

The error messages are shown in order of priority. Follow the action needed for the messages, starting with the message at the top of the list.

To display the information about a message:

- Touch **HELP** then touch the message list.
- Use the right-arrow and left-arrow to see the help text for each message.

Message	Information	Reference
AXES MOVING	Some of the machine axes are moving. This message clears when the adjustment is complete. If the message does not clear, touch **ADVANCED** > **RE-REF**.	
BOOK CYCLE TIME TOO LONG	The printer has delivered the sets faster than the books can be made. To decrease the book cycle time, adjust the machine settings: • decrease the number of **FORMS** • decrease the number of **STITCHES** • decrease the **TAMPER TIME** • touch STOP to clear the message from the screen	
BOOK DELIVERY TOO FAST	Books are being delivered to the stacker too fast. This error can happen when you insert books into the stacker by hand. Press the reset button on the stacker. If the problem continues, then call your service engineer.	
Bridge axis moving	The bridge axis is moving. This message clears when the adjustment is complete. If the message does not clear, touch **ADVANCED** > **RE-REF**.	
BRIDGE INFEED COVER OPEN	The bridge infeed cover is open. The machine will not operate until the cover is closed.	See “Jam in the Bridge Infeed” on page 64.

Message	Information	Reference
BRIDGE MOTOR STALL	Check for a paper jam in the connecting bridge. • Touch STOP ⊙ to stop the PowerSquare. • Clear the paper jam. • Touch STOP ⊙ to clear the message from the screen. • Continue the print job.	See “Jam in the Connecting Bridge” on page 64.
BRIDGE - No Comms	Use the mains ON/OFF switch. Turn the machine OFF, then turn the machine ON. If the problem continues, then call your service engineer.	
CENTRE - No Comms	Use the mains ON/OFF switch. Turn the machine OFF, then turn the machine ON. If the problem continues, then call your service engineer.	
Centre axis moving	The centre axis in the bridge is moving. This message clears when the adjustment is complete. If the message does not clear, touch **ADVANCED** > **RE-REF**.	
CHECK PAPER SIZE	Remember to check the paper size. To make an accurate book you must enter accurate paper dimensions into the touch screen. Measure the size of the printed paper. The paper dimension changes when the paper is printed.	
CHECK THE TRIM BIN	The trim bin is either open or full. Check the trim bin. Empty the trim bin if necessary.	See “Empty the Trim Bin” on page 33.
COVER OPEN	A safety cover is open. The machine will not operate until the cover is closed.	
DFA INTERFACE - No comms	Use the mains ON/OFF switch. Turn the machine OFF, then turn the machine ON. If the problem continues, then call your service engineer.	

Message	Information	Reference
DRIVE MOTOR STALL	There is a paper jam. Check the machine and correct the error. Touch STOP ⊙ to clear the message from the screen.	See “Paper Jams” on page 64.
Endlay axis moving	The endlay axis (size adjustment) is moving. This message clears when the adjustment is complete. If the message does not clear, touch **ADVANCED** > **RE-REF**.	
ENDLAY - No comms	Use the mains ON/OFF switch. Turn the machine OFF, then turn the machine ON. If the problem continues, then call your service engineer.	
ERROR IN TRIM AREA	There is an error at the trimmer. Check the trimmer for a paper or book jam. Touch STOP ⊙ to clear the message from the screen.	See “Jam in the Trim Area” on page 69.
ERROR - No Comms	Use the mains ON/OFF switch. Turn the machine OFF, then turn the machine ON. If the problem continues, then call your service engineer.	
FLOW ERROR - BRIDGE	There is an error at the connecting bridge. Open the connecting bridge cover and check for a paper jam. Touch STOP ⊙ to clear the message from the screen.	See “Jam in the Connecting Bridge” on page 64.
FLOW ERROR - FORMER	There is an error at the former. Open the folder cover and remove the book. If necessary, open the main deck to remove the book.	See “Jam in the Folder or Former Area” on page 66.
FLOW ERROR - GATHER AREA	There is a paper jam in the gathering area. Open the gathering area and remove the paper jam.	See “Jam in the Gathering Area” on page 65.
FLOW ERROR - OUTFEED	There is an error at the outfeed. Remove the trim bin and open the trim stop guard to remove the book. If necessary, open the main deck to remove the book.	See “Jam in the Trim Area” on page 69.

Message	Information	Reference
FLOW ERROR - STITCHER	There is an error at the stitcher. Open the folder cover and remove the book. If the problem continues, then call your service engineer.	See “Jam in the Stitch Area” on page 66.
Fold blade axis moving	The fold blade axis (book thickness adjustment) is moving. This message clears when the adjustment is complete. If the message does not clear, touch **ADVANCED** > **RE-REF**.	
FOLD BLADE NOT PARKED	Open the folder cover, remove the paper, close the folder cover. Touch START ⏻, then follow the instructions on the screen.	
FOLD - No comms	Use the mains ON/OFF switch. Turn the machine OFF, then turn the machine ON. If the problem continues, then call your service engineer.	
FORM CLAMP CLOSED	The form clamp is in the wrong position. Touch START ⏻ to reset the position. Follow the instructions on the screen.	
FORM ROLLER ERROR	Open the folder cover, remove the paper, close the folder cover.	See “Jam in the Folder or Former Area” on page 66.
FORM ROLLER NOT PARKED	The form roller is in the wrong position. Touch START ⏻ to reset the position. Follow the instructions on the screen.	
FORM CLAMP ERROR	There is an error at the former. Open the folder cover and remove the book. If necessary, open the main deck to remove the book.	See “Jam in the Folder or Former Area” on page 66.
GATHERING AREA COVER OPEN	Close the gathering area cover if you need to operate the machine online.	

Message	Information	Reference
GATHER MOTOR STALL	Check for a paper jam in the Gathering area. • Touch STOP ⊙ to stop the PowerSquare. • Clear the paper jam. • Touch STOP ⊙ to clear the message from the screen. • Continue the print job.	
GATHER MTR - No comms	Use the mains ON/OFF switch. Turn the machine OFF, then turn the machine ON. If the problem continues, then call your service engineer	
INVERTER ERROR	Check for a paper jam and clear if necessary. Touch STOP ⊙ to clear the message from the screen. If the problem continues, contact your Watkiss service engineer.	See “Paper Jams” on page 64
JAM AT BRIDGE INFEED	There is a paper jam at the infeed to the connecting bridge. Clear the jam and continue.	See “Jam in the Bridge Infeed” on page 64.
JAM AT FORM ROLLER	Open the folder cover, remove the paper, close the folder cover.	See “Jam in the Folder or Former Area” on page 66.
JAM AT STACKER INFEED	There is a jam in the stacker infeed. Remove the books from the stacker infeed. Press the reset button on the stacker.	See “Jam at stacker infeed (Book Stacker)” on page 70.
JAM AT STACKER OUTFEED	There is a jam in the stacker outfeed or there are paper-trimmings in the stacker outfeed. Remove the books from the stacker outfeed. Check for paper-trimmings and remove them if present. Press the reset button on the stacker.	See “Jam at stacker outfeed (Book Stacker)” on page 71.
JAM BEFORE TRIMMER	There is a book jammed before the trimmer. Open the main deck to remove the book.	See “Jam before the Trimmer” on page 67.
JAM IN GATHERING AREA	There is a paper jam in the gathering area. Open the gathering area and remove the paper jam.	See “Jam in the Gathering Area” on page 65.

Message	Information	Reference
JAM IN STACKER AREA	There is a paper jam at the outfeed of the machine. Remove the jammed books and continue.	
JAM IN STITCHER AREA	There is a paper jam in the stitch area. Open the folder cover, remove the paper jam and continue.	See “Jam in the Stitch Area” on page 66.
JAM IN STITCH HEAD	There is a jam in the stitch head.	See “Clear a Stitch Head Jam” on page 74.
JAM IN TRIMMER	There is a book jammed in the trimmer. Clear the jam and continue.	See “Jam in the Trim Area” on page 69.
MAIN CONTROL - No comms	Use the mains ON/OFF switch. Turn the machine OFF, then turn the machine ON. If the problem continues, then call your service engineer.	
MANUALLY PARK SHUTTLE	The shuttle is not parked correctly. Open the folder cover and move the shuttle to the park position. Close the folder cover. The shuttle will reset. When the message list is clear, continue operation.	See “Manually park the Shuttle” on page 79.
MISSING STITCHES	The machine has detected missed stitches. Check if the stitch-wire is jammed or if the stitch-wire spool is empty.	See “Clear a Stitch-wire Jam” on page 72 or see “Install New Stitch-wire” on page 94.
MOTOR CONTROLLER NOT READY	The drive motor controller is not ready. If the problem continues, contact your service engineer.	
OPERATOR MAINTENANCE	The machine needs routine maintenance by the operator.	See “Operator Maintenance” on page 81.
REBOOT THE MACHINE	Use the mains ON/OFF switch. Turn the machine OFF, then turn the machine ON. If the problem continues, then call your service engineer.	
REMOVE SET FROM FOLD AREA	Open the folder cover and remove the set.	See “Jam in the Folder or Former Area” on page 66.

Message	Information	Reference
REMOVE SET - GATHERING AREA	Open the gathering area and remove the sheets.	See “Jam in the Gathering Area” on page 65.
REMOVE SET - STITCH AREA	Open the folder cover and remove the set.	See “Jam in the Stitch Area” on page 66.
Rotate axis moving	The rotate axis is moving. This message clears when the adjustment is complete. If the message does not clear, touch **ADVANCED** > **RE-REF**.	
SHUTTLE MOTOR COMMS FAIL	Use the mains ON/OFF switch. Turn the machine OFF, then turn the machine ON. If the problem continues, then call your service engineer.	
SHUTTLE MOTOR ERROR	Use the mains ON/OFF switch. Turn the machine OFF, then turn the machine ON. If the problem continues, then call your service engineer.	
Sidelay axis moving	The sidelay axis (size adjustment) is adjusting. This message clears when the adjustment is complete. If the message does not clear, touch **ADVANCED** > **RE-REF**.	
SIDELAY - No comms	Use the mains ON/OFF switch. Turn the machine OFF, then turn the machine ON. If the problem continues, then call your service engineer.	
STACKER FULL	The stacker is full. Unload the books from the stacker.	
STACKER - No comms	Check that the stacker power input is connected. Check that the stacker mains ON/OFF switch is ON. If the problem continues, then call your service engineer.	
Stitch axis moving	The stitch axis is moving. This message clears when the adjustment is complete. If the message does not clear, touch **ADVANCED** > **RE-REF**.	

Message	Information	Reference
Stitch length will change soon	The stitch length cannot adjust at the moment. The stitch leg length will adjust after the next book.	
STITCH - No comms	Use the mains ON/OFF switch. Turn the machine OFF, then turn the machine ON. If the problem continues, then call your service engineer.	
Stitch position adjusting	The stitch position is adjusting. This message clears when the adjustment is complete. If the message does not clear, touch **ADVANCED** > **RE-REF**.	
STITCH TIMEOUT	Press STOP ⊙. Open the folder cover, remove the paper, close the folder cover.	
SYSTEM ERROR 00.20 40.21 40.22 42.xx 43.xx	Touch STOP to clear the message from the screen. If the message does not clear, use the mains ON/OFF switch. Turn the machine OFF, then turn the machine ON. If the problem continues, then call your service engineer.	
SYSTEM ERROR 39.xx	Press the reset button on the stacker. If the message does not clear, use the stacker mains ON/OFF switch. Turn the stacker OFF, then turn the stacker ON. If the problem continues, then call your service engineer.	
TAMPER - No comms	Use the mains ON/OFF switch. Turn the machine OFF, then turn the machine ON. If the problem continues, then call your service engineer	
TOO MANY PAGES	The printer has delivered too many sheets into the gathering area. Remove the incorrect set. Touch STOP ⊙ to clear the message from the screen. Check the settings for **SET THICKNESS** or **SHEET THICKNESS**.	

Message	Information	Reference
TOUCH PAD ERROR	There is a fault with the START and STOP touch pads. If the problem continues, then call your Watkiss service engineer.	
Touch START to clear machine	There may be some paper in the machine. Touch START ⏻ to clear the machine before you start a new job.	
Trim axis moving	The trim axis (size adjustment) is moving. This message clears when the adjustment is complete. If the message does not clear, touch **ADVANCED** > **RE-REF**.	
TRIM BIN OPEN	The trim bin is not fitted or is not contacting the safety switch. Fit the trim bin.	See “Empty the Trim Bin” on page 33.
TRIM BLADE NOT PARKED	The trim blade is in the wrong position. Touch START ⏻ to reset the position. Follow the instructions on the screen.	
TRIM - No comms	Use the mains ON/OFF switch. Turn the machine OFF, then turn the machine ON. If the problem continues, then call your service engineer.	
USER STOP	The user has touched the STOP button while the machine is in operation. Touch START ⏻ to restart the machine.	

Paper Jams

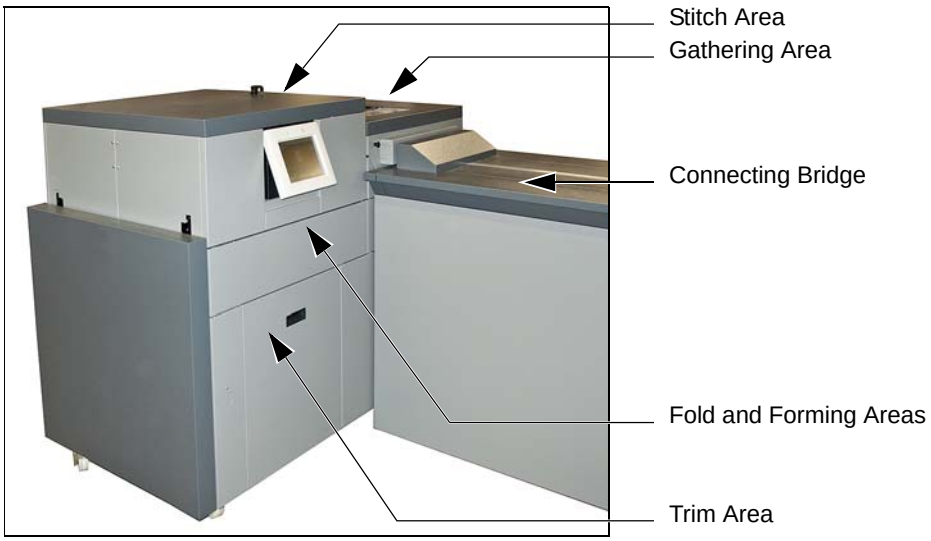


FIGURE 25. Paper Jam Locations.

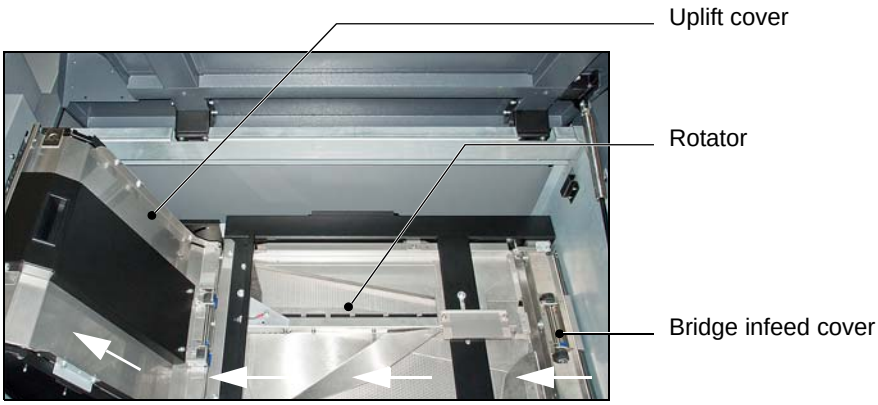


FIGURE 26. Inside the connecting bridge

Jam in the Bridge Infeed

1. Open the connecting bridge cover.
2. Open the bridge infeed cover.
3. Remove the jammed paper.
4. Close the bridge infeed cover.
5. Close the connecting bridge cover.

Jam in the Connecting Bridge

1. Open the connecting bridge cover.
2. Remove the jammed paper. Check in the rotator and open the uplift cover. When clear of paper, close the uplift cover.
3. Close the connecting bridge cover.
4. If the message **FLOW ERROR - BRIDGE** is displayed on the screen, touch STOP ⊙ to clear the message from the screen.

Jam in the Gathering Area

S

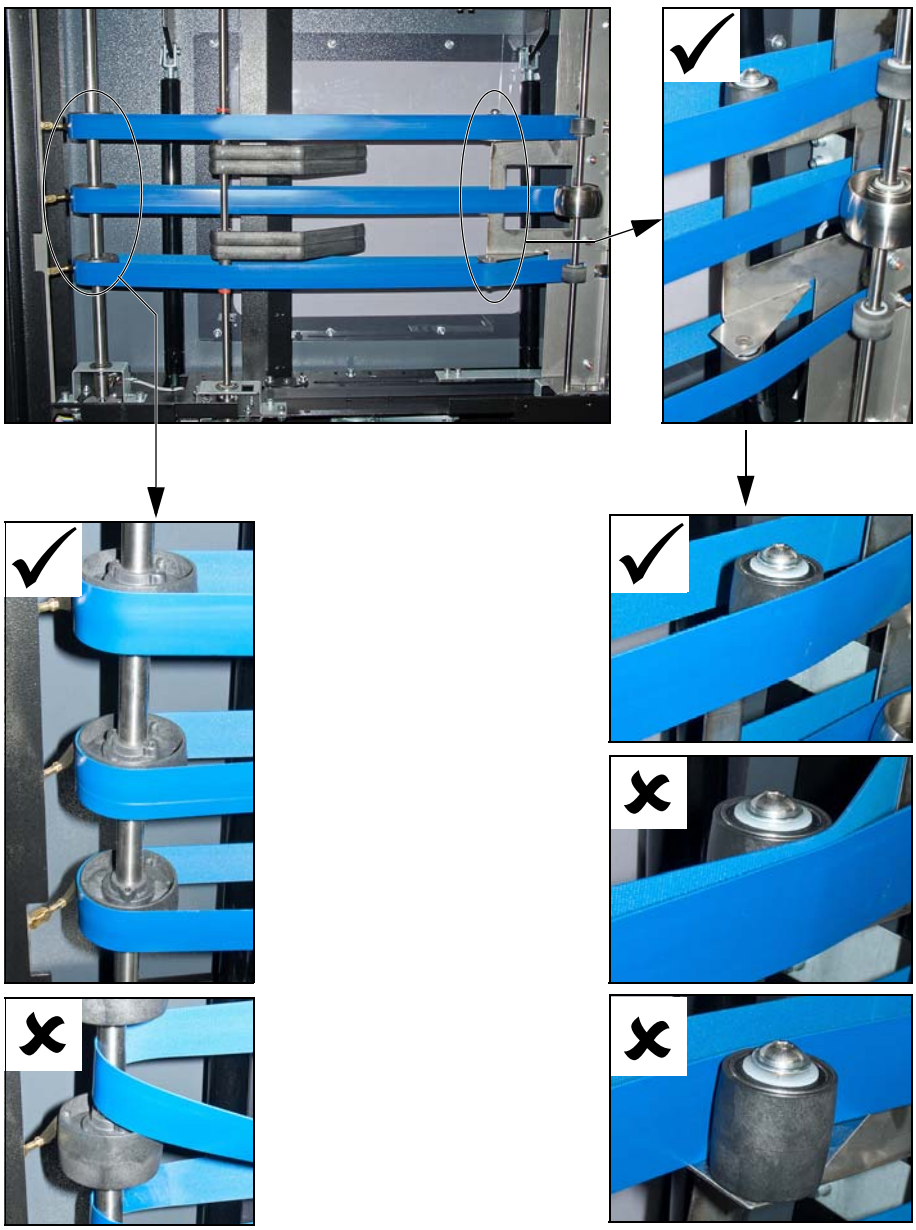
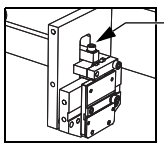


FIGURE 27. Gathering Area Belt Positions

1. Lift the gathering area cover.
2. Remove the jammed paper.
3. Check the belts are in the correct position. Adjust the position of the belts if necessary. See Figure 27.
4. Close the gathering area cover.

Jam in the Stitch Area

Step	Action	Information
1	Open the folder cover.	See “Open and Close the Folder Cover” on page 29.
2	Lift the clincher frame.	See “Lift and Lower the Clincher Frame” on page 30.
3	Remove the jammed paper.	
4	Check for broken or damaged stitches in the clincher area. Manually operate the clincher to clear any stitches that are jammed.	 Press to manually operate the clincher.
5	Lower the clincher frame.	See “Lift and Lower the Clincher Frame” on page 30.
6	Close the folder cover.	

Jam in the Folder or Former Area

1. Open the folder cover.
2. Remove the jammed paper.
   If you cannot see the paper in the former area, see “Jam in the Trim Area” on page 69.
3. Close the folder cover.

Jam before the Trimmer

The error message **JAM BEFORE TRIMMER** is displayed. This error can be

- a book jammed before the trimmer
- a piece of paper trimming has covered the jam sensor

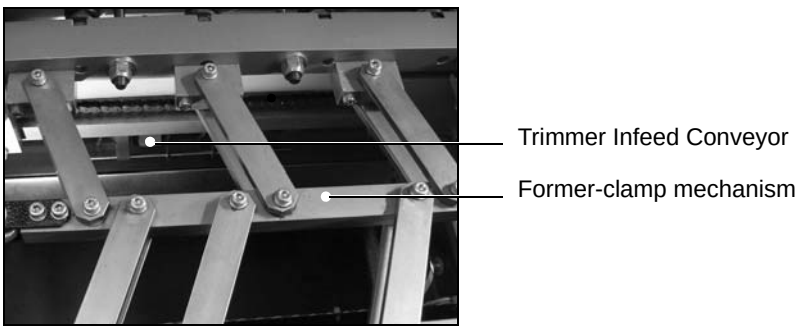


FIGURE 28. Trimmer Infeed Conveyor viewed from above

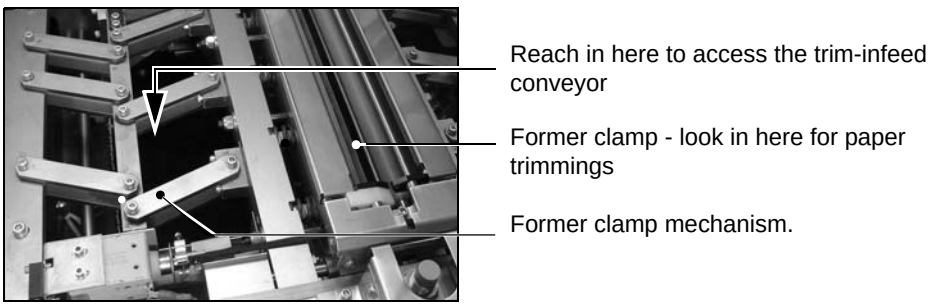
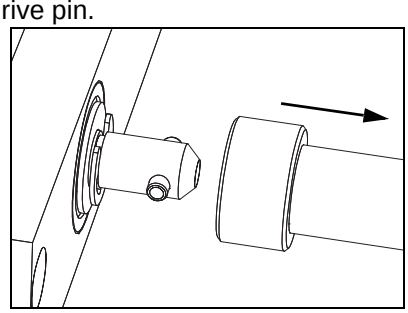
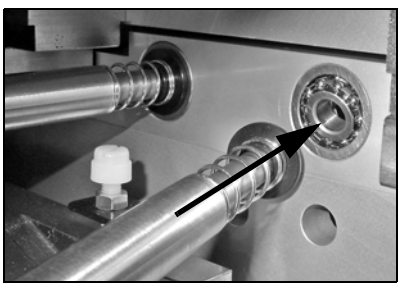


FIGURE 29. Access to the Trimmer Infeed Conveyor

Step	Action	Information
1	Open the PowerSquare main deck.	See “Lift the PowerSquare Main Deck” on page 31
2	Remove the trim bin.	

Step	Action	Information
3	Loosen the trimmer infeed conveyor.	The procedure can be seen from the top of the machine. See Figure 28. Access to the parts is through the former clamp mechanism. See Figure 29. Hold the shaft and push to the right, against spring pressure to disengage the shaft from the drive pin.  Lift the left hand end clear.
4	Remove the book, if one is found.	
5	Remove any paper offcuts from the trimmer infeed conveyor.	Look down through the former clamp. See Figure 29. Small pieces of paper trimmings can cover the jam sensor and cause an error message.
6	Fit the trimmer infeed conveyor.	Look down through the former clamp. • Insert the right hand end of the shaft into the bearing, against the spring pressure.  • Rotate the trimmer infeed conveyor, so that the green belts are vertical. • Insert the left hand end, so that the shaft engages with the drive pin.
7	Fit the trim bin.	
8	Close the PowerSquare main deck and covers.	

Jam in the Trim Area

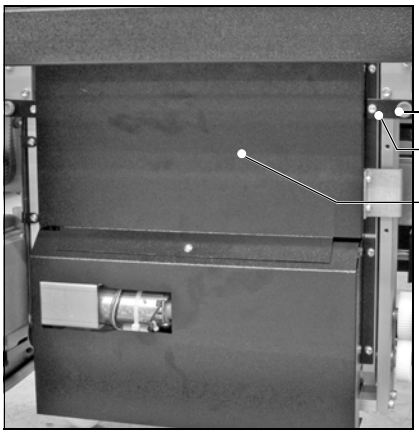


FIGURE 30. Trim Stop Guard

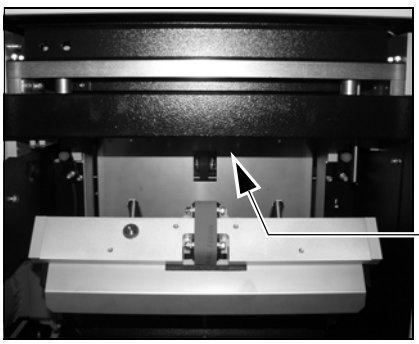


FIGURE 31. Location of the sensor

Step	Action	Information
1	Remove the trim bin.	
2	Open the trim stop guard.	See Figure 30. Loosen the 2 orange plastic hand screws to release the locking plates. The locking plates can rotate to release the trim stop guard. Pull the trim stop guard towards you.
3	Remove the jammed book.	
4	Check the trim stop and remove any pieces of trimmed paper.	In particular, check around the sensor. The sensor is where you can see a red and a green light. See Figure 31. Small pieces of paper trimmings can cover the sensor and cause an error message.

Step	Action	Information
5	Close the trim stop guard.	Push the trim stop guard into position. Hold the locking plates in position and tighten the orange hand screws.
6	Attach the trim bin.	

Jam at stacker infeed (Book Stacker)

The error message **JAM AT STACKER INFEED** is displayed. This means a book is covering the sensor at the Book Stacker infeed.

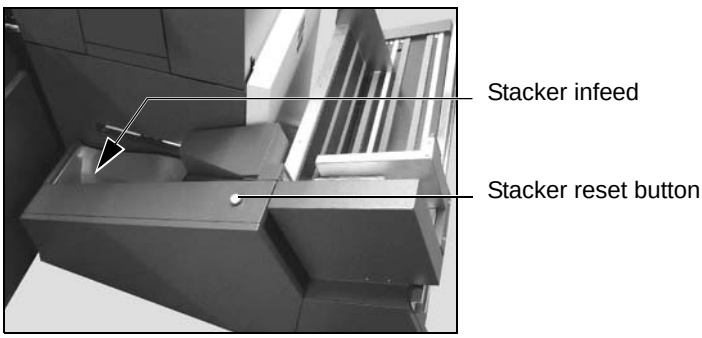


FIGURE 32. Book Stacker infeed

1. Remove the book.
2. If you are making thin books, attach the magnetic paper guide. See “Adjust the Book Stacker” on page 36.
3. Press the reset button on the stacker.

Jam at stacker outfeed (Book Stacker)

The error message **JAM AT STACKER OUTFEED** is displayed. This means a book or some paper-trimmings are covering the sensor at the Book Stacker outfeed.

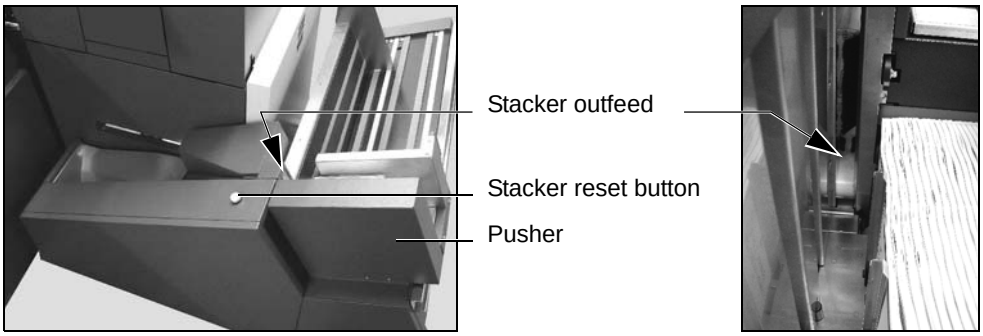


FIGURE 33. Book Stacker outfeed

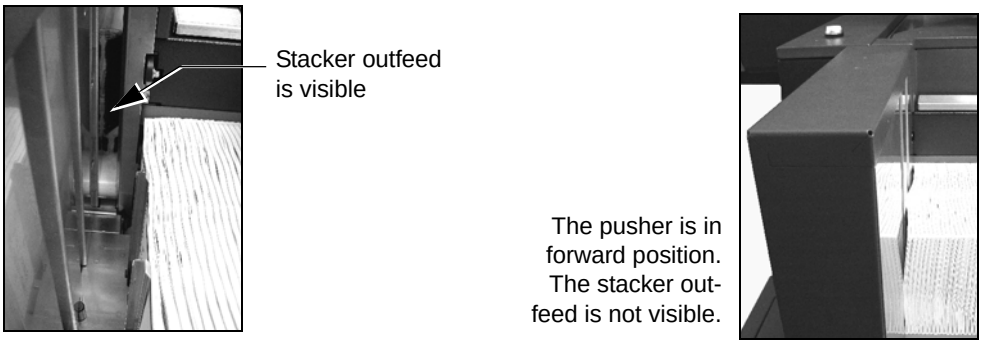


FIGURE 34. Stacker outfeed

If the stacker outfeed is visible:

1. Remove the book, if present.
2. Check for paper-trimmings and remove them, if present.
3. Press the reset button on the stacker.

If the pusher is in the forward position so that the stacker outfeed is not visible:

1. Use your hand to move the pusher to the left, against the spring pressure.
2. Remove the book, if present.
3. Check for paper-trimmings and remove them, if present.
4. Press the reset button on the stacker.

Clear a Stitch-wire Jam

Before You Begin

Lift the PowerSquare main deck. See “Lift the PowerSquare Main Deck” on page 25.

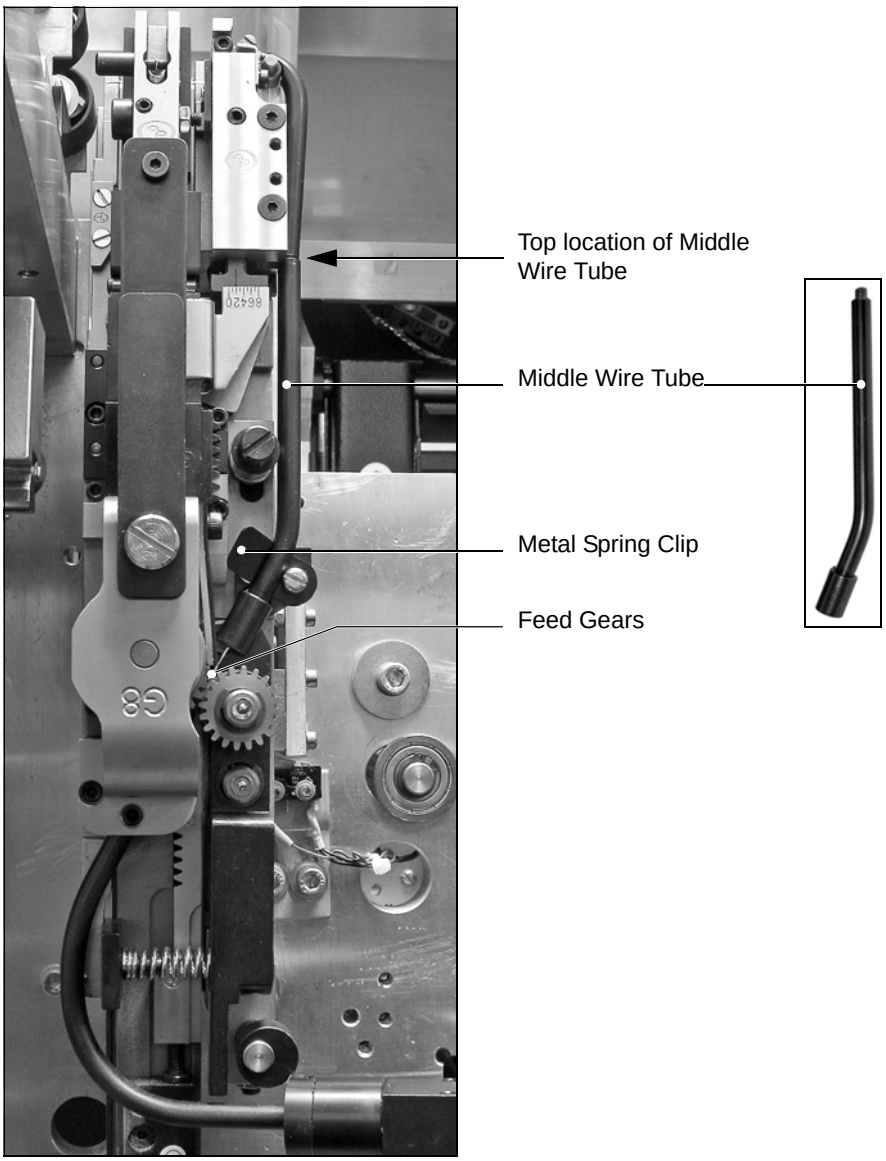
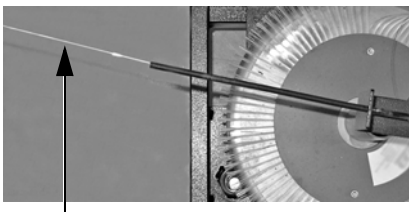
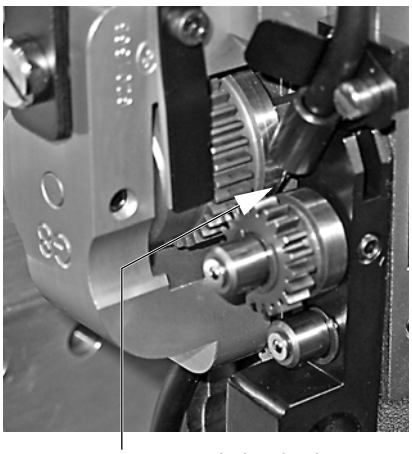
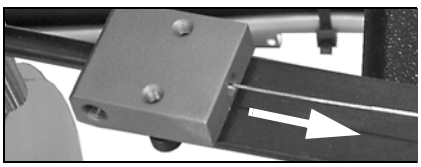


FIGURE 35. Stitch Head

Clear the Jammed Wire

Step	Action	Information
1	Cut the stitch-wire at position ‘A’, approximately 50mm (2-inches) from where the stitch-wire leaves the stitch-wire guide.	 ‘A’. Cut stitch-wire here.
2	Cut the stitch-wire at position ‘B’, between the feed gears and the middle wire tube.	 ‘B’. Cut stitch-wire here.
3	Pull the stitch-wire from the stitch-wire guide block.	 Pull stitch-wire in direction of arrow
4	Remove the middle wire tube.	See Figure 35 on page 72.
5	Pull the wire from the stitch head.	
6	Install the stitch-wire into the stitch head.	See “Install the Stitch-wire into the Stitch Head” on page 96.

Clear a Stitch Head Jam

When to do

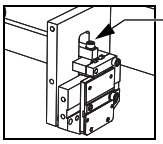
The error message **JAM IN STITCH HEAD** is displayed.

This may be caused by

- the **SET THICKNESS** setting is incorrect
- the stitch head is jammed by broken wire
- the stitch head needs lubrication

Do Procedure 1. If the error message continues, do Procedure 2.

Procedure 1

Step	Action	Information
1	Open the folder cover.	See “Open and Close the Folder Cover” on page 29.
2	Lift the clincher frame.	See “Lift and Lower the Clincher Frame” on page 30.
3	Remove the jammed paper.	
4	Check for broken or damaged stitches in the clincher area. Manually operate the clincher to clear any stitches that are jammed.	 Press to manually operate the clincher.
5	Lower the clincher frame.	See “Lift and Lower the Clincher Frame” on page 30.
6	Close the folder cover.	
7	Press the START button ⏻. Follow the on-screen instructions.	

Procedure 2

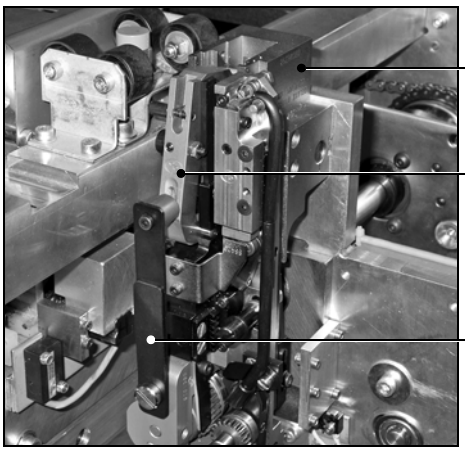
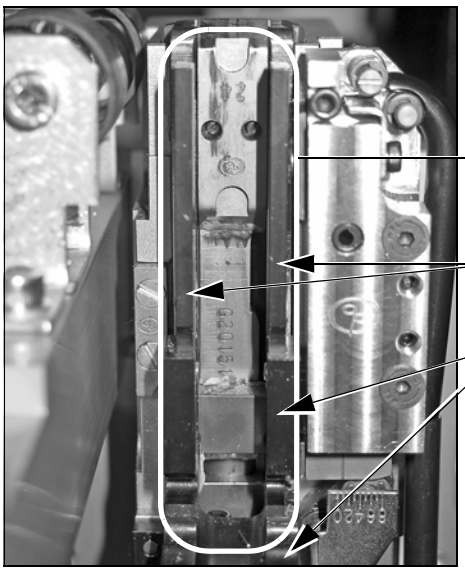


FIGURE 36. Remove the stitch head wire-holder

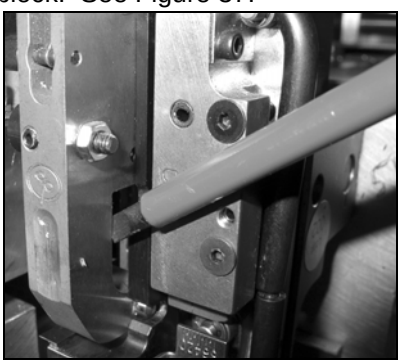


CAUTION: *Do not apply force to the wire guide bars or the pivot block when you do this procedure. Force on these parts will damage the stitch head.*

FIGURE 37. Inspect for stitch-wire

Tools and Materials:

- Klüber Isoflex NBU15 Grease, 50g. Part number 951-095
- Air duster. Supplied with the machine.
- Wire cutters. Supplied with the machine.
- Flat blade screwdriver

Step	Action	Information
1	Lift the PowerSquare main deck.	See “Lift the PowerSquare Main Deck” on page 31.
2	Remove the wire-holder from the stitch head.	• Move the wire-holder retaining spring to the right. See Figure 36 on page 75. • Remove the wire-holder. If the wire-holder is held in position, use a screw driver to help the removal of the wire-holder from the stitch head. **CAUTION** - Do not apply force to the wire guide bars or the pivot block. See Figure 37. 
3	Inspect the area behind the wire-holder for pieces of stitch-wire.	See Figure 37 on page 75.
4	Remove any stitches or pieces of stitch-wire and clean the area with the air-duster.	Use the wire-cutters to remove any jammed stitches or pieces of stitch-wire.
5	Lubricate the stitch-head.	See “Lubricate the Stitch Head” on page 89.
6	Fit the wire-holder.	Remember to put the wire-holder retaining spring in position.
7	Close the PowerSquare.	
8	Start the PowerSquare.	If the head operates normally and returns to the parked position, then further action is not needed. If the stitch head remains jammed, then repeat the procedure one time. If the problem continues, then contact your Watkiss service engineer.

Calibrate the Touch Screen

When to do

Calibrate the touch screen if the buttons do not operate or the buttons do not operate correctly

CAUTION: *Use a pencil, the blunt end of a pen or a palm top wand for this procedure. Do not use a sharp object. Sharp objects damage the screen.*

Procedure

1. Touch the STOP button ⊙ 5 times.
2. Follow the instructions on the touch screen.
   You must touch the screen, where shown, as accurately as possible.
3. Touch **DONE** in the centre of the screen.

Change the Fuses - PowerSquare

Introduction

The PowerSquare has two fuses at the mains power input. See Figure 3 on page 4.
If either fuse is broken, the PowerSquare will not operate.

WARNING: *Turn OFF the machine and remove the mains power supply cable before you change the fuses. This machine uses two fuses in parallel.*

WARNING: *To avoid the risk of fire, replace fuses using only the same type and rating.*

Fuse Description

- 7A, HRC Quick acting, F
- Part Number 730-018

Procedure

1. Turn OFF the PowerSquare.
2. Disconnect the PowerSquare from the mains power supply.
3. Turn one fuse-holder to the left and remove the fuse-holder from the PowerSquare
4. Check the fuse.
5. If the fuse is broken then replace with a fuse of the correct specification.
6. Repeat the procedure for the other fuse.

Result

If the fuse breaks again, then call your Watkiss service engineer.

Change the Fuses - Book Stacker

Introduction

The Book Stacker has two fuses at the power input connector. See Figure 4 on page 5.
If either fuse is broken, the Book Stacker will not operate.

WARNING: *Turn OFF the machine and remove the mains power supply cable before you change the fuses. This machine uses two fuses in parallel.*

WARNING: *To avoid the risk of fire, replace fuses using only the same type and rating.*

Fuse Description

- 3A, HRC Quick acting, F
- Part Number 730-017

Procedure

1. Turn OFF the Book Stacker.
2. Disconnect the Book Stacker from the power supply.
3. Check each fuse.
4. If the fuse is broken then replace with a fuse of the correct specification.

Result

If the fuse breaks again, then call your Watkiss service engineer.

.

Manually park the Shuttle

When to do

The error messages **MANUALLY PARK SHUTTLE** and **SHUTTLE NOT PARKED** are displayed.

Illustrations

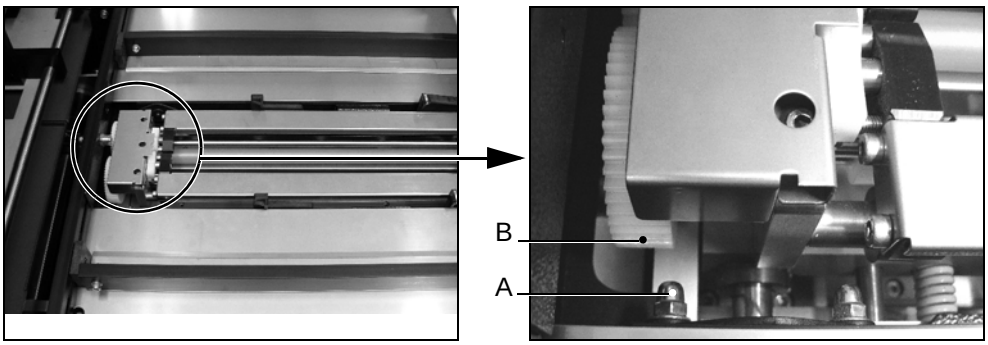


FIGURE 38. Shuttle Assembly Position - CORRECT

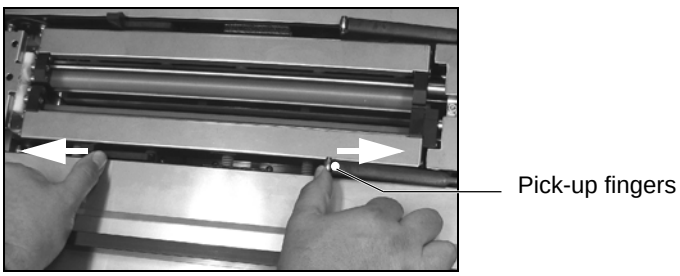


FIGURE 39. Pick-up fingers

Procedure

Step	Action	Information
1	Open the folder cover.	See “Open and Close the Folder Cover” on page 29.
2	Push the shuttle-assembly to the end.	Figure 38 on page 79 shows the correct position for the shuttle assembly. The screw ‘A’ must align with the white gear ‘B’. If the shuttle assembly does not move to the correct position, push the pick-up fingers away from each other by 2-3mm and try again. Repeat if necessary. See Figure 39.
3	Wait until the error message **SHUTTLE NOT PARKED** is cleared from the screen.	If the message does not clear, check that the shuttle assembly is in the correct position. Repeat Step 2 if necessary.
4	Close the folder cover.	

Result

The error message **MANUALLY PARK SHUTTLE** is cleared from the screen. The shuttle axis re-references and the message **Shuttle axis moving** is displayed.

When the message list is clear, you can continue operation.

CHAPTER 6 Maintenance

Service Interval

- The PowerSquare needs service every six months.
- After every one-million stitches, the stitch head needs service. This interval is every 3rd spool of stitch-wire.

Only a Watkiss service engineer can service the PowerSquare. Contact your supplier for further information.

Operator Maintenance

Correct maintenance by the operator makes sure that

- The machine operates correctly
- The machine makes high quality books
- The machine is safe to use
- Small problems can be identified early

Operator Maintenance Plan

Interval	Task	Reference
• Every week	Clean the machine.	See page 82.
• When the message **OPERATOR MAINTENANCE** is displayed on the screen.	Lubricate the stitch head.	See page 89.
	Clean the former roller.	See page 83.
	Clean the polyurethane strips in the form clamp.	See page 84.
	Clean the trimmings-removal fingers.	See page 86.
	Clean excess grease from the stitch head	See page 88.

Clean the PowerSquare

Introduction

Clean the PowerSquare every week to remove surface dust.

CAUTION: *Only clean the machine with materials that are recommended in this manual. Do not use other chemicals or abrasive material.*

Outside of the PowerSquare

Use a moist cloth to clean the outside of the PowerSquare.

Touch screen

Clean the touch screen with a clean, dry cloth. Never use an abrasive material or chemical to clean the touch screen. Light pressure with a clean, dry cloth is enough to remove fingerprints. Do not use too much force.

Clean the Former Roller

When to do

- When the message **OPERATOR MAINTENANCE** is displayed on the screen.
- Clean the former roller if the spines of the books are dirty. Ink and toner can collect on the former roller.

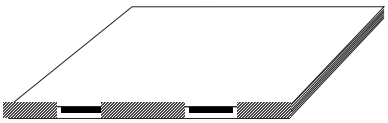


FIGURE 40. Dirty marks on the spine

Materials needed

Clean, plain paper that is not printed. A3 size (USA: 11 x 17”) is recommended. 4mm thickness is needed for each cycle. More than one cycle can be needed.

Procedure

Step	Action	Information
1	Enter the correct settings on the touch screen.	• Set the touch screen to the correct **PAPER SIZE.** • Set the **SET THICKNESS** to **4.0**. • Set the number of **STITCHES** to **0**. • Set the number of **FORMS** to **4**.
2	Touch START	
3	Lift the gathering area cover.	
4	Put 4mm of clean paper in the gathering area.	
5	Press the two orange buttons and hold for 9 seconds, or until you hear the folder operate.	

Check

The book is delivered to the stacker. Check the book. Repeat the procedure until the book spine is clean.

Clean the Polyurethane Strips in the Form Clamp

When to do

- When the message **OPERATOR MAINTENANCE** is displayed on the screen.
- Clean the polyurethane strips in the form clamp if there are dirty marks near the spine on the front and back cover of the book. Ink and toner can collect on these parts, especially when you make thin books.

FIGURE 41. Dirty marks beside the spine

Materials description

- Alcohol wipe, Part number 951-710
- or a lint free cloth and alcohol (isopropanol)

CAUTION: *Only use alcohol to clean this part of the machine. Other chemicals can damage the machine.*

CAUTION: *Wear protective gloves when you use the alcohol wipe.*

Note

If you push the eject rollers, the rollers can move together against your hand. This movement can alarm you, but is not dangerous.

Illustration

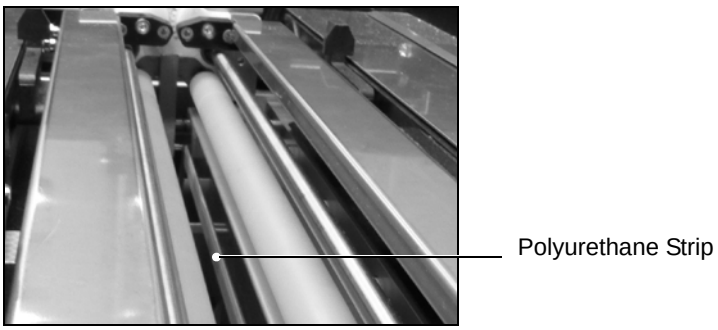


FIGURE 42. Polyurethane strips

Procedure

Step	Action	Information
1	Open the folder cover	
2	Use an alcohol wipe, or apply a small amount of alcohol to a lint free cloth.	Wear protective gloves when you use the alcohol wipe.
3	Reach into the form clamp and clean each of the polyurethane strips.	There is a polyurethane strip on the face of each side of the clamp. Repeat this step until the polyurethane strips are clean.
4	Close the folder cover	

Clean the Trimmings-removal Fingers

When to do

- When the message **OPERATOR MAINTENANCE** is displayed on the screen.
- Clean the trimmings-removal fingers if there are small, dirty marks on the book. Ink and toner can collect on the trimmings-removal fingers and cause marks on the book.

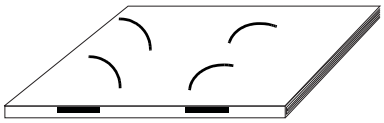


FIGURE 43. Curved marks on the book

Materials needed

- Alcohol wipe
  Part number 951-710

CAUTION: *Wear protective gloves when you use the alcohol wipe.*

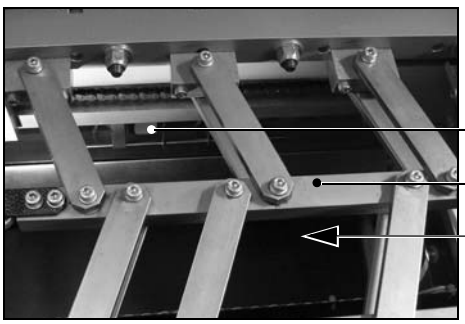


FIGURE 44. Trimmer infeed conveyor viewed from above_1

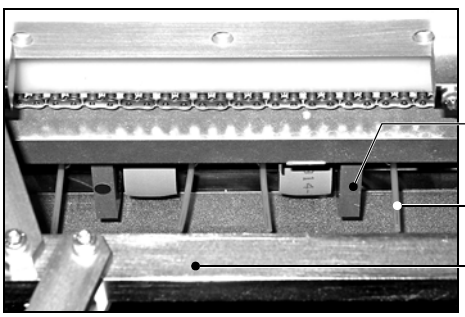
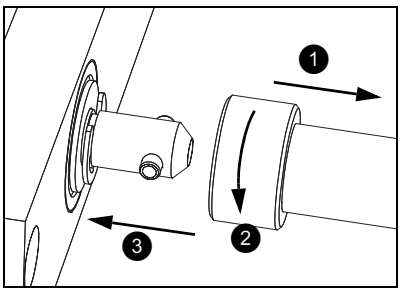


FIGURE 45. Trimmer infeed conveyor viewed from above_2

Procedure

Step	Action	Information
1	Lift the PowerSquare main deck.	See “Lift the PowerSquare Main Deck” on page 31.
2	Remove the trim bin.	
3	Clean the four visible trimmings-removal fingers with an alcohol wipe.	The procedure can be seen from the top of the machine. Access to the parts is through the former-clamp mechanism. See Figure 44. Wear protective gloves when you use the alcohol wipe.
4	Rotate the conveyor shaft by half a turn.	1. Hold the shaft and push to the right, against spring pressure, to disengage the shaft from the drive pin.  2. Rotate the shaft by half a turn. 3. Align the shaft with the drive pin and release.
5	Clean the four visible trimmings-removal fingers with an alcohol wipe.	Wear protective gloves when you use the alcohol wipe.
6	Fit the trim bin.	
7	Close the PowerSquare.	

Clean excess grease from the Stitch Head

When to do

- When the message **OPERATOR MAINTENANCE** is displayed on the screen.
- Clean excess grease from the stitch head if there are grease marks around the stitches on the book.

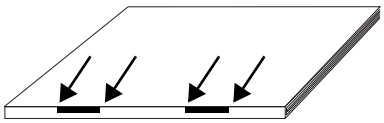
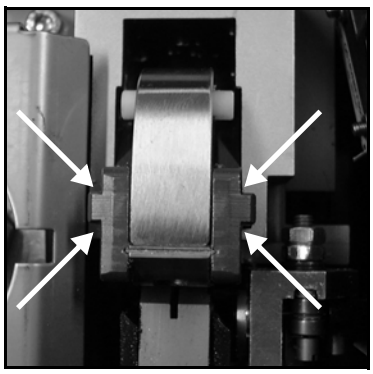


FIGURE 46. Grease marks around the stitches

Materials needed

- Lint free cloth

Procedure

Step	Action	Information
1	On the user interface, touch ⩥ **ADVANCED** > **STITCHER UP > STITCHER UP**	The folder cover must be closed. This action moves the stitch head to the correct position for lubrication.
2	Open the folder cover.	See “Open and Close the Folder Cover” on page 29.
3	Lift the clincher frame.	See “Lift and Lower the Clincher Frame” on page 30.
4	Clean grease from the sides of the stitch head.	
5	Lower the clincher frame.	
6	Close the folder cover.	

Lubricate the Stitch Head

When to do

- When the message **OPERATOR MAINTENANCE** is displayed on the screen.
- When a new stitch-wire is installed if this interval is shorter.

Materials needed

- Klüber Isoflex NBU15 Grease, 50g
  Part number 951-095
- Air duster
  Part number 952-436

CAUTION : *Only use the grease shown in this manual. Correct lubrication extends the performance and service life of the stitch head. Other types of grease do not protect the stitch head.*
Only apply the grease as shown. If you apply additional grease, the paper gets marked.

Initial Procedure

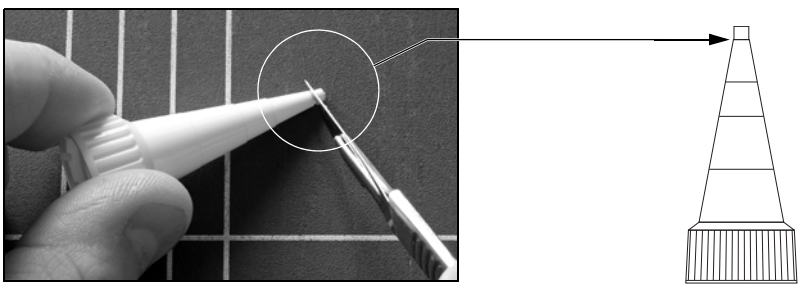
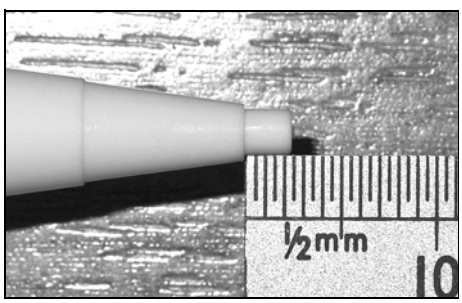
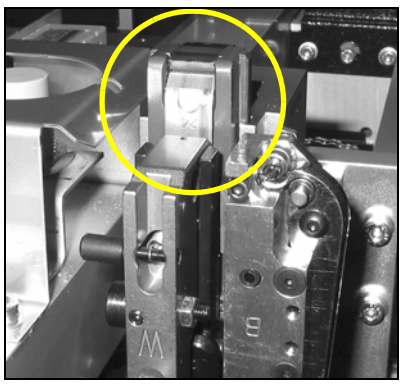
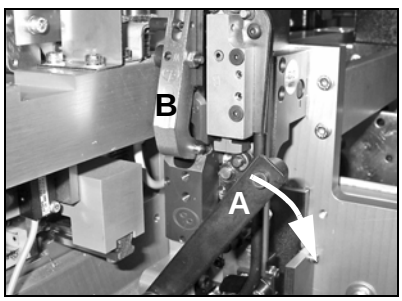
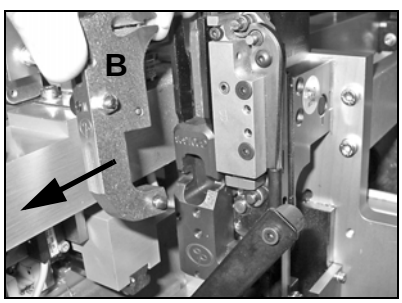


FIGURE 47. Trim the nozzle of the tube of grease

Step	Action	Information
1	Trim the first 2.5mm from the nozzle.	See Figure 47 on page 89 
2	Remove the cap from the tube of grease.	
3	Fit the nozzle to the tube of grease.	

Step	Action	Information
4	On the user interface, touch ⩥ **ADVANCED** > **STITCHER UP** > **STITCHER UP**	The folder cover must be closed. This action moves the stitch head to the correct position for lubrication.
5	Lift the PowerSquare main deck.	See “Lift the PowerSquare Main Deck” on page 31. You will see that the stitch head in the ‘STITCHER UP’ position. 
6	Use the supplied air duster to remove dust from the stitch head.	
7	Remove the wire holder from the stitch head: Move the wire holder retaining spring ‘A’ to the right. Remove the wire holder ‘B’.	 

Apply the Grease to the Driver Bar

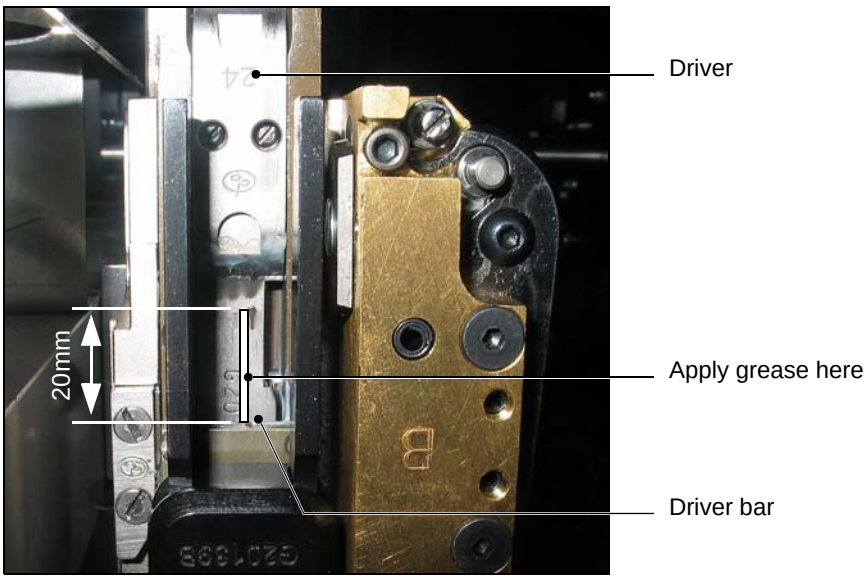


FIGURE 48. Driver bar

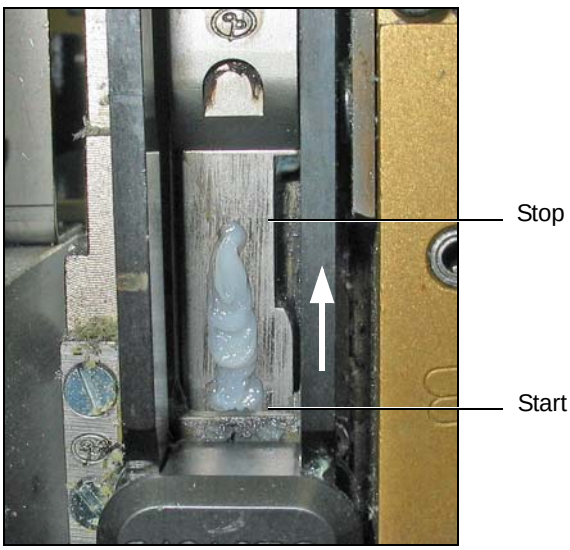
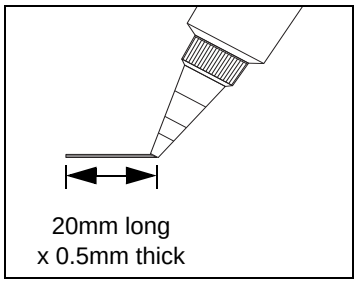


FIGURE 49. Apply the Grease to the Driver Bar

Step	Action	Information
1	Apply a thin line of grease from the tube, 20mm long, to the visible surface of the driver bar. The line of grease must be a maximum of 0.5mm thick and as shown in FIGURE 48. **Note:** Apply the grease in an upward direction, from the bottom of the driver bar. **Note:** Only apply the grease as shown. If you apply additional grease, the paper gets marked.	See FIGURE 48.  20mm long x 0.5mm thick
2	Fit the wire holder.	

Lubricate the Wire-feed Cam

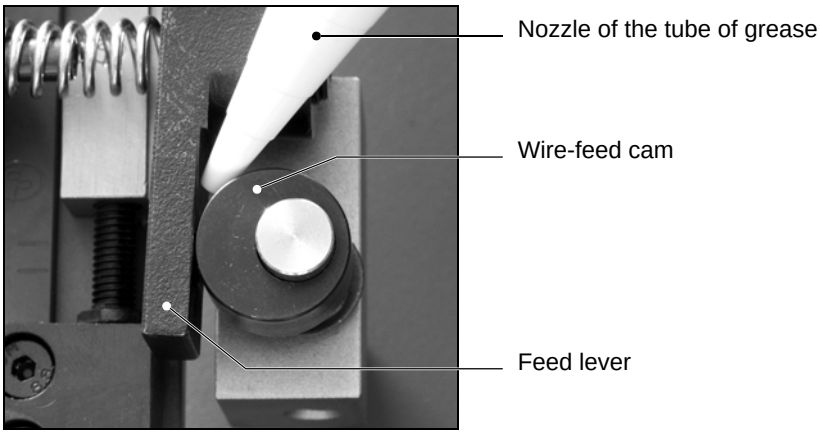
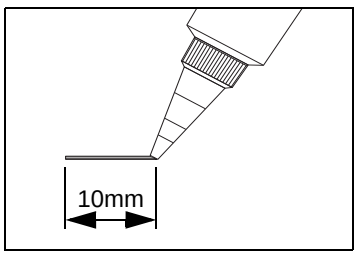


FIGURE 50. Lubricate the wire-feed cam

Step	Action	Information
1	Apply 10mm of grease from the tube between the bearing surface of the wire-feed cam and the feed lever.	See FIGURE 50. 
2	Lower the PowerSquare main deck.	
3	Lower the clincher frame.	See “Lower the Clincher Frame” on page 30.
4	Close all of the covers.	
5	Make some test books.	
6	Clean excess grease from the top of the stitch head.	See “Clean excess grease from the Stitch Head” on page 88.

Reset the Operator Maintenance Counter

1. Touch **MENU**.
2. Touch and hold **RESET**. A red line appears. The red line fills from left to right. Hold **RESET** until the red line reaches the right-hand side.
3. Touch **MENU**.

Install New Stitch-wire

Introduction

Only use stitch-wire that is approved by your supplier. Stitch-wire that is not approved by your supplier can cause bad performance and cancels the warranty.

Stitch-wire Description

- PSQ, Stitch Wire PowerBind 0.6mm 15kg
- Part number 812-038

Before You Begin

Lift the PowerSquare main deck. See “Lift the PowerSquare Main Deck” on page 25.

Remove the Stitch-wire from the Stitch Head

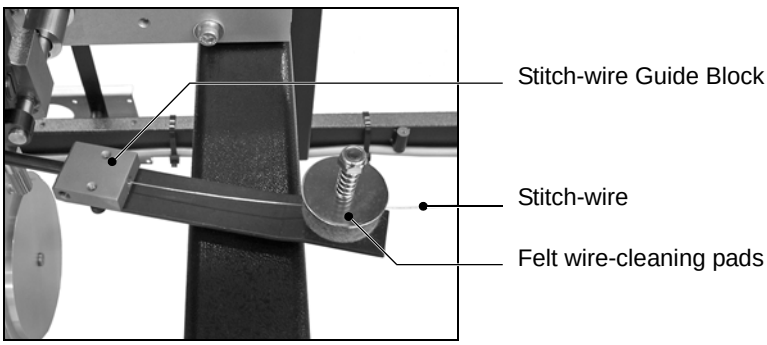
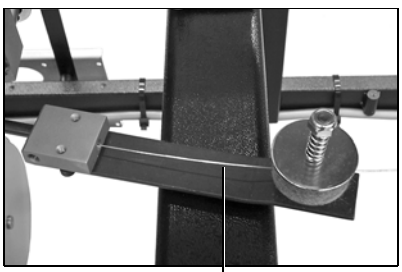
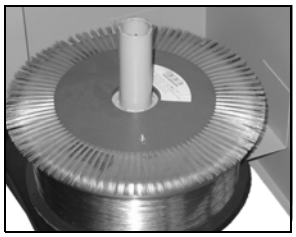
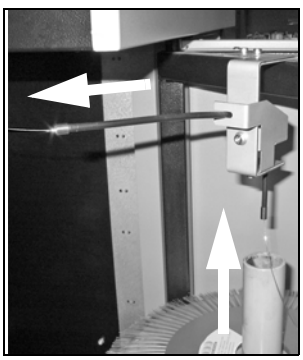


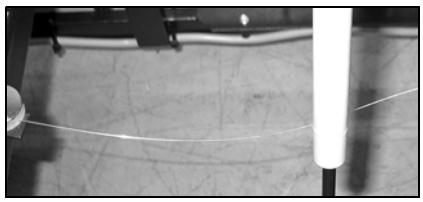
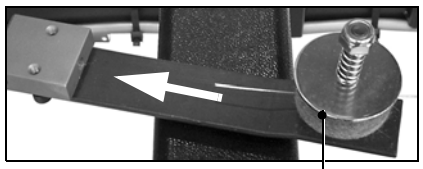
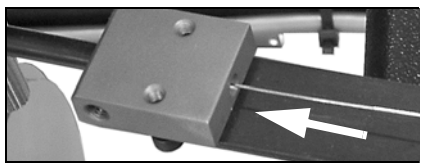
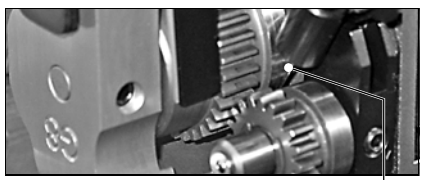
FIGURE 51. Stitch-wire Guide Block

Step	Action	Information
1	Cut the stitch-wire to the right of the stitch-wire guide block.	 Cut here
2	Pull the stitch-wire from the stitch-wire guide block.	
3	Fit a new stitch-wire spool.	See “Fit a New Stitch-wire Spool” on page 95.

Fit a New Stitch-wire Spool

Step	Action	Information
1	Open the stitch-wire cabinet.	
2	Remove the stitch-wire cap and finished stitch-wire spool.	
3	Fit a new stitch-wire spool.	
4	Fit the stitch-wire cap.	
5	Loosen the end of the stitch-wire from the edge of the stitch-wire spool.	
6	Use wire-cutters to remove the damaged end of the stitch-wire.	Remove enough stitch-wire to leave the end of the stitch-wire clean and straight.
7	Feed the stitch-wire through the stitch-wire guide.	
8	Install the stitch-wire.	See “Install the Stitch-wire into the Stitch Head” on page 96.

Install the Stitch-wire into the Stitch Head

Step	Action	Information
1	Pull the stitch-wire from the end of the stitch-wire guide.	
2	Make sure the stitch-wire runs behind the gas-strut.	
3	Feed the end of the stitch-wire between the felt wire-cleaning pads.	 Felt Wire-Cleaning Pads
4	Push the stitch-wire into the stitch-wire guide block.	 Push stitch-wire in direction of arrow
5	Push the stitch-wire as far as possible.	 Make sure the stitch-wire runs between the wire feed rollers and into the middle wire tube.

Close the PowerSquare

Step	Action	Information
1	Close the stitch wire cabinet.	
2	Lower the PowerSquare main deck.	
3	Lower the clincher frame.	See “Lower the Clincher Frame” on page 30.
4	Close the folder cover.	

Feed the Stitch-wire

Step	Action	Information
1	Touch START	
2	Set the number of stitches to 6.	Touch **BASIC** > **STITCHES**.
3	Hand-feed or print an A4 or larger size test job.	Enter the correct settings on the touch screen, according to the size and thickness of the job. The stitch-wire loads automatically during the stitch head cycle.
4	Check the stitch-wire is loaded.	Check that a stitch is made. If needed, repeat the previous step. If a stitch is still not made, repeat the procedure “Install the Stitch-wire into the Stitch Head” on page 96.
5	Reset the number of stitches on the touch screen.	

Clear paper from the trim stop

When to do

- Clear paper from the trim stop if the books are not trimmed square.
  If paper trimmings collect on the trim stop, the books are not trimmed square.

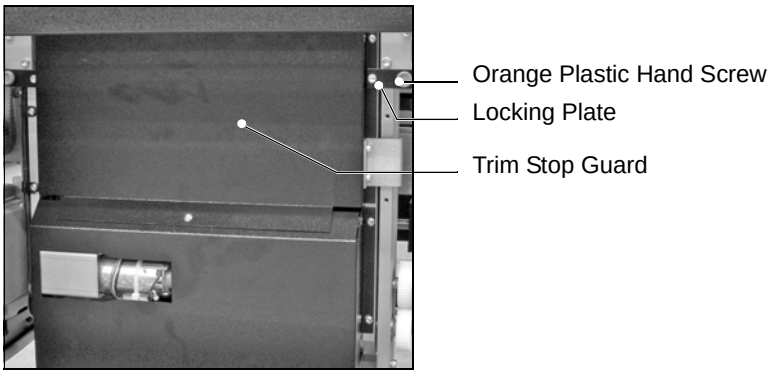


FIGURE 52. Trim Stop Guard

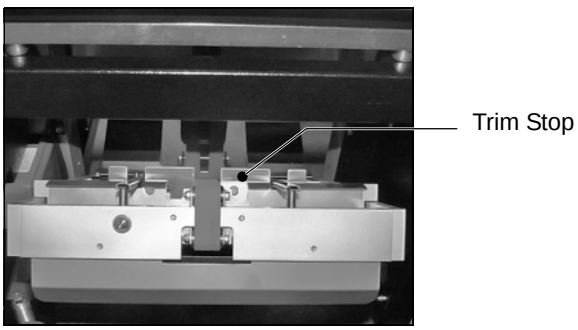
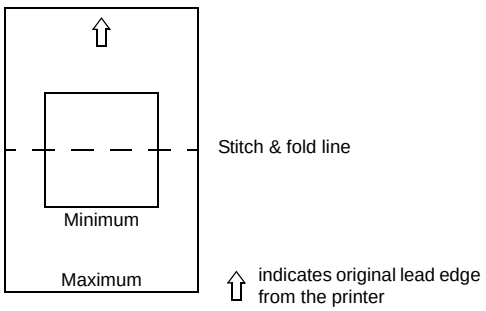


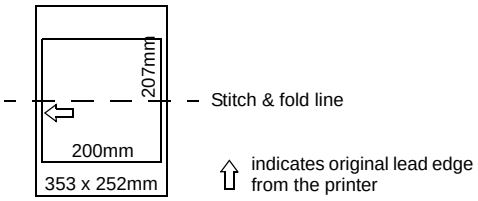
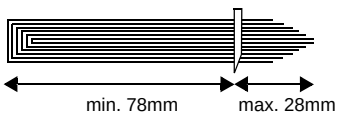
FIGURE 53. Trim Stop

Step	Action	Information
1	Remove the trim bin.	
2	Open the trim stop guard.	See Figure 52. Loosen the 2 orange plastic hand screws to release the locking plates. The locking plates can rotate to release the trim stop guard. Pull the trim stop guard towards you.
3	Check the trim stop and remove any pieces of trimmed paper.	See Figure 53
4	Close the trim stop guard.	Push the trim stop guard into position. Hold the locking plates in position and tighten the orange hand screws.
5	Attach the trim bin.	

CHAPTER 7 Specifications

Operating Conditions	10-35°C 35-85% relative humidity up to 2000m above mean sea level
Production	Cycle time: Printer dependent. Interset gap: minimum 1 second Minimum set time: 4.2 seconds Maximum set time: 12.5 seconds
Stock Sizes - Online	Minimum input size: 200 x 200mm Maximum input size with PBR5: 370 x 520mm



Sheet Rotation	Integrated rotator ensures maximum printer productivity. Maximum rotation sheet size PBR5: 353 x 252mm Minimum rotation sheet size: 207 x 200mm The cross-track dimension of the sheet (before rotation) must be at least 7mm greater than the in-track dimension. 
Stock Range	60 - 250gsm dependent on paper type and quality
Book Thickness	Maximum finished book thickness: up to 10.4mm (approximately 208 pages 80gsm; 224 pages 70gsm) dependent on paper type and quality Maximum set thickness: up to 5.2mm (approximately 52 sheets 80gsm; 56 sheets 70gsm) dependent on paper type and quality
Stitching	1 - 6 stitches, evenly spaced on the spine of the book Stitches/spool: up to 291,500 Books*/spool: approximately 127,000
Fore-Edge Trimming	Maximum fore-edge trim: 28mm Minimum trimmed book size: 78mm 
Stacker Capacity	Standard stacker: 35 books* Book Stacker (optional): 930mm
Paper Input Requirements	Input sheets must be of consistent size and cut square. Machine setting must match paper size *at the input to the PowerSquare*. Book quality is dependent upon quality of input sheets.
Dimensions	**Footprint** With standard stacker: 1870 x 2755mm With Book Stacker: 2420 x 2280 **Height** 1330mm
Weight	Online PowerSquare: 532kg Book Stacker: 150kg

Power Supply	Adjustable to 200, 208, 220, 230 and 240V 50/60Hz, single phase
Power Consumption	PowerSquare stand-by: 92VA (75W) in operation: 700VA (500W) Book Stacker stand-by: 35VA (16W) in operarion: 75VA (53W)
Noise Emission	stand-by: ambient in operation: 66 dB (A), peak 87 dB (A)
Approvals	Complies with CE and UL. Conforms to FCC rules Part 15 Class A and VCCI Class A.
Radio Frequency Emissions	This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

* Standard book is made from 20 sheets of 80gsm paper, with 2 stitches.

Production may vary according to operating conditions. In line with a policy of continual product improvement, the manufacturer reserves the right to alter the materials or specification of this product at any time without notice.

CHAPTER 8 Declaration of Conformity

(According to ISO/IEC 17050-1)

Name of Manufacturer:	Watkiss Automation Limited
Address of Manufacturer:	Watkiss House Blaydon Road Sandy, Bedfordshire SG19 1RZ United Kingdom

Declares that the product:

Name of Product:

- Watkiss PowerSquare
  Serial No. WA/PSQ/---/0010 onwards
- Watkiss PowerSquare Book Stacker
  Serial No. WA/PBS/0001 onwards

Conforms to the following Directives:

Safety:	2006/95/EC Council Directive 'on the approximation of laws of Member States relating to electrical equipment designed for use within certain voltage limits'. EN 60950-1:2006 (ed.2) + A11:2009 + A1:2010 + A12:2011
EMC:	2004/108/EC Council Directive 'on the approximation of laws of Member States relating to electromagnetic compatibility'. EN55022:2010 Class A EN55024:2010 EN61000-3-2:2006 +A1:2009 + A2:2009 EN61000-3-3:2008

RoHS:	2011/65/EC Council Directive
WEEE:	2002/96/EC Council Directive amended by 2008/34/EC and 2008/35/EC
Reach:	REGULATION (EC) No. 1907/2006

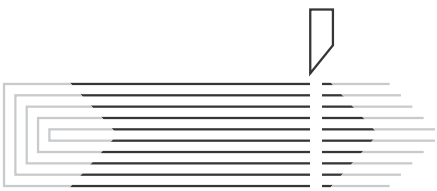
M C Watkiss
Technical Director, Watkiss Automation Ltd.
21 May 2013

Appendix

Image Creep

About Image Creep

When a stack of paper is folded to make a booklet, the thickness of the paper causes a progressive image movement between the inner-most and outer-most pages. This is called creep.



To keep the image in the same place on each page, an adjustment for creep can be made.

Some print machines can automatically compensate when they print in 'booklet mode'.

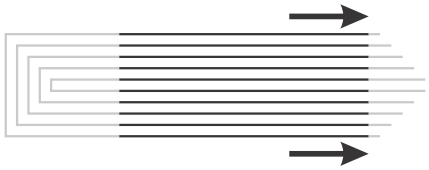
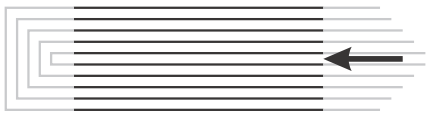
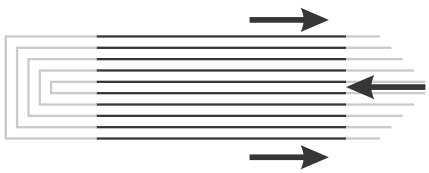
Alternatively, adjustment can be made in origination software (such as InDesign); or PDF pages can be adjusted before they are printed using imposition software (such as Quite Imposing).

The amount of creep adjustment needed depends on the number of pages and the thickness of the paper. A booklet with only a few pages and wide margins may not need adjustment because the difference, after the book is trimmed, is not noticeable. With more pages, smaller margins, or bulkier paper, the creep becomes more noticeable and can result in loss of image if no adjustment is made.

Calculating Creep Adjustment

1. Measure the thickness of the set, before booklet-making.
   (i.e. the number of sheets of paper multiplied by the thickness of the paper)
2. The spine thickness of the finished booklet is two times the set thickness
3. The pages need to be incrementally adjusted by the spine thickness.

Depending on the job, this can be achieved by:

Positive creep adjustment Move the pages on the outermost sheet *away from the spine*. The innermost sheet is not adjusted. This is sometimes called a positive creep, or pull-out.	
Negative creep adjustment The outermost sheet is not adjusted. Move the pages on the inner sheets *towards the spine*. This is sometimes called a negative creep, or push-in.	
Balanced creep adjustment The adjustment is balanced between the inside and outside pages.	

Example

- The book is 40 sheets of 80gsm paper.
- The set thickness is measured at 4mm.
- The spine thickness is therefore 8mm.

Positive creep. Adjust the pages *incrementally* so that the front page and back page are both moved 8mm away from the spine.

Negative creep. Adjust the pages *incrementally* so that the inside pages are both moved 8mm towards the spine.

Balanced adjustment. Adjust the pages *incrementally* so that the inside pages are both moved 4mm towards the spine and the front and back page are both moved 4mm away from the spine.

Watkiss Automation Limited
1 Blaydon Road
Middlefield Industrial Estate
Sandy, Bedfordshire
SG19 1RZ United Kingdom
Tel: +44 (0)1767 685700
Fax: +44 (0)1767 689900
Email: info@watkiss.com